Santa Clara Valley Water District

TC 425 S383 W38 1985a c.1

M. McNeely

memorandum

FC 14 (10-02-84)

TO: Distribution

FROM: Randy Talley

SUBJECT: Waterways Planning Study Zone Reports

DATE: 2/4/85

Attached is a draft copy of the prototype for Waterways Planning Study Zone Reports. The zone report consists of an Administrative Summary, a Detailed Flood Control Facility Analysis (Appendix A), and a Maintenance Report (Appendix B). Twelve creeks in the East Zone have been described for your review of the report format and content.

The information presented in this report was primarily generated by the programs of the Waterways Management Model as described in the Waterways Planning Study General Report. The stationing convention used in this report is that adopted for the Waterways Planning Study and depicted on the 1% flood limit and flood control facility maps.

I think we have produced a tremendously valuable document which will be a source for data, descriptions, assumptions, and procedures. It will be a critical document for long-range planning and facilities management.

Please return your comments by February 15, 1985.

R. Talley

Division Engineer
Predesign Division

Attachments

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SANTA CLARA VALLEY WATER DISTRICT

WATERWAYS PLANNING STUDY

EAST ZONE REPORT

Appendix A & Appendix B

APPENDIX A

SANTA CLARA VALLEY WATER DISTRICT

APPENDIX A
(Detailed Flood Control Facility Analysis)

EAST ZONE REPORT

Prepared by Predesign Division

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JANUARY 1985

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APPENDIX A

PREFACE

This Appendix includes detailed background information for East Zone Flood Control Facilities (Figure 1). The information concerning each facility is presented in a separate section and the sections are organized by ascending facility number (Figure 2). The information within each section is organized as follows:

1) Watercorse Inventory - Includes a brief watershed description, significant environmental features and major erosion and sediment problems.
2) Flood Damage Potential - Includes a written descrition of the 1% flood and identifies 1% flood damages.
3) Remedial Measures - Includes a description of proposed remedial measures, costs and possible funding sources.
4) Table A-1 (Channel Descriptions) - Lists channel type, and geometry by station.
5) Table A-2 (Channel Type Summary) - Presents a cumulative summary of channel types for each facility.
6) Table A-3 (Environmental Conditions) - Lists habitat type and quality, dominant species, vegetative quantity, and areas used for groundwater recharge and recreation.
7) Table A-4 (Environmental Summary) - Presents a cumulative summary of environmental conditions.
8) Table A-5 (Erosion Potential) - Presents observed erosion allowable velocity, and potential erosion based upon tractive force.
9) Table A-6 (Capacity/Flood Summary) - Lists drainage area, 1% and 10% design flow rates, 1% flow rate for existing channel and watershed conditions, channel capacity, N value (corresponding to capacity), flood frequency, 1% damages and average annual damages for selected contiguous reaches.
10) Table A-7 (1% Floodplain Summary) - Lists area flooded, number of buildings, 1% flood damages, annual insurance costs (assuming minimum coverage and 100% participation), flood proofing costs, and floodplain acquisition cost (total property value) by land use category and for the total floodplain.
11) Table A-8 (Feasible Flood Damage Reduction Elements) - Presents the results of a systematic screening of flood damage reduction elements for feasibility.
12) Table A-9 (Cost Estimate) - Provides a cost breakdown of the proposed remedial measure(s).

13) Table A-10 (Funding Sources) - Presents benefit cost ratio and identifies possible funding sources for specified remedial measures.

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(4026) LOWER SILVER CREEK 1

(4032) UPPER PENITENCIA CREEK 1

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(4037) SIERRA CREEK 1

(4044) FOWLER CREEK 1

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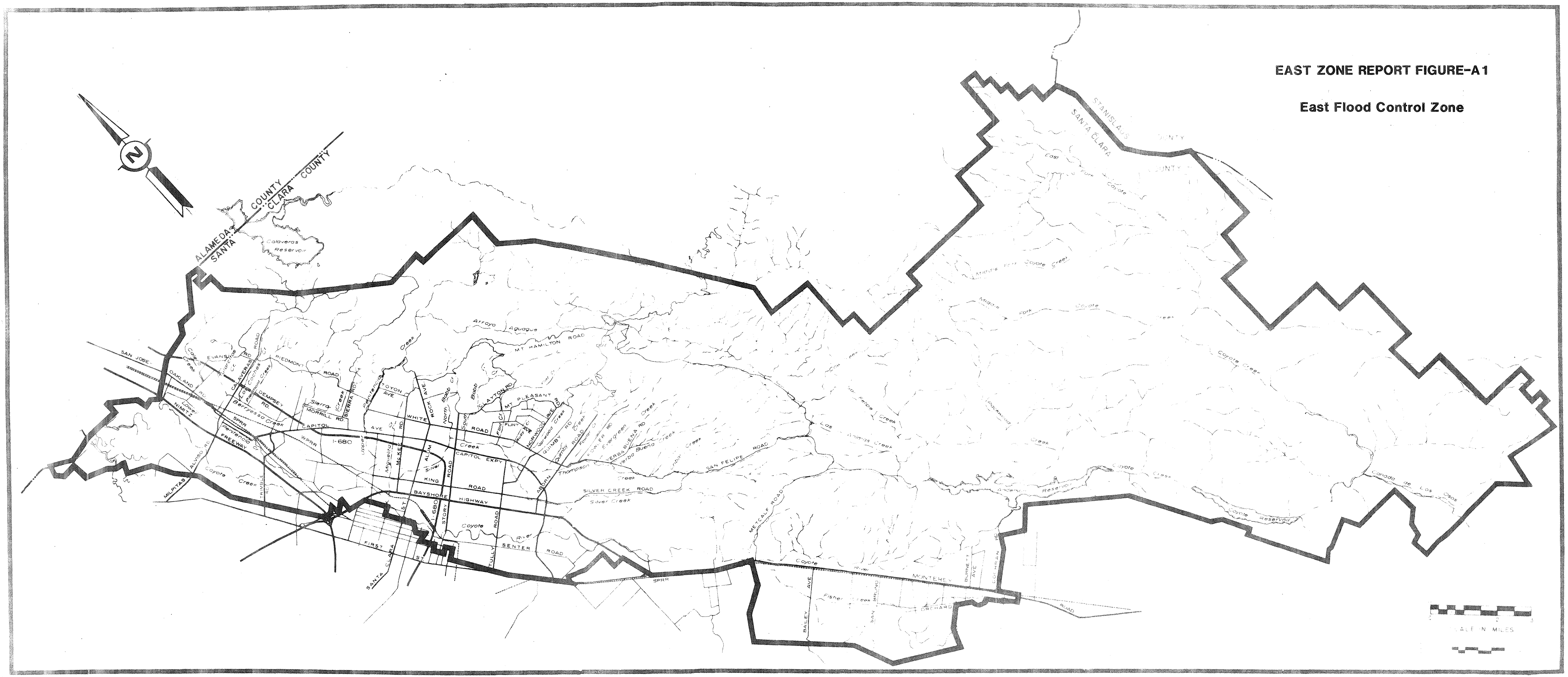
FIGURES

A1 East Flood Control Zone . . . .

A2 East Zone Creeks . . . .

EAST ZONE REPORT FIGURE-A1

East Flood Control Zone



EAST ZONE REPORT FIGURE-A2

East Zone Creeks

Arroyo Aguague Creek (4011)
Berryessa Creek (4017)
Calera Creek (4018)
Cochran Channel (4056)
Coyote Creek (4021)
Cribari Creek (4036)
Crosley Creek (4041)
East Penitencia Creek (4049)
Evergreen Creek (4045)
Fisher Creek (4023)
Flint Creek (4048)
Fowler Creek (4044)
Los Animas Creek (4051)
Los Buellis Creek (4010)
Los Coches Creek (4025)
Lower Penitencia Creek (4033)
Lower Silver Creek (4026)
Miguelita Creek (4029)
Misery Creek (4035)
North Babb Creek (4012)
Norwood Creek (4042)
Packwood Creek (4054)
Piedmont Creek (4031)
Quimby Creek (4043)
Ruby Creek (4019)
San Felipe Creek (4053)
Scott Creek (4055)
Shingle Creek (4052)
Sierra Creek (4037)
South Babb Creek (4013)
Sweigert Creek (4030)
Thompson Creek (4047)
Tularcitos Creek (4040)
Upper Penitencia Creek (4032)
Upper Silver Creek (4038)
Willow Springs Creek (4016)
Wrigley-Ford Creek (4015)
Yerba Buena Creek (4046)

86R4937

SOUTH BABB CREEK (4013)

Watercourse Inventory

Watershed Description

The South Babb Creek watershed comprises approximately 4 square miles. The watercourse is approximately 3.6 miles from the confluence with Lower Silver Creek to the limit of District jurisdiction. The only major tributary to South Babb Creek is North Branch South Babb Creek. South Babb Creek is located within the City of San Jose and unincorporated areas of Santa Clara County. Channel characteristics on South Babb Creek are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

The habitat quality on South Babb Creek is considered to be very low. South Babb Creek is not used as a recharge facility, and includes no developed recreation facilities. Tables A3 and A4 are not included in Appendix A.

Erosion and Sediment

There are no reaches with observed erosion greater than one foot on South Babb Creek. Tractive force analysis indicates that there are potentially erosive velocities from Clayton Road upstream to Cedar Flat Court and at the confluence with North Branch South Babb Creek. A summary of observed and potential erosion is given in Table A5.

Substantial sediment deposition is occurring in the vicinity of Clayton Road and farther downstream near Farrington Avenue.

Flood Damage Potential

One Percent Flooding

Upstream of Mt. Pleasant School the channel flowrate is 890 cfs. Downstream of Mt. Pleasant School a spill occurs at Lochner Drive due to insufficient culvert capacity. This spill flows northwest (190 cfs), draining into North Babb Creek, south (20 cfs), and southwest (135 cfs) toward White Road. The area affected by this shallow flooding (less than one foot) includes single family homes, a public school, and shopping centers along White and Story Roads.

The remaining channel flowrate downstream of Lochner Drive is 510 cfs, which is reduced again by a spill at White Road due to inadequate culvert capacity. Most of this spill flows northwest (130 cfs), eventually becoming local drainage that enters Lower Silver Creek. Some of the floodwaters (95 cfs) flow southwest, combine with the Lochner Road spill, and enter Lower Silver Creek upstream of the confluence with South Babb Creek (180 cfs). The area affected by this shallow flooding is essentially the same as that affected by the Lochner Road spill. The flowrate in South Babb Creek at the confluence with Lower Silver Creek is 290 cfs.

A summary of channel capacities is given in Table A6.

Flooding Damages

Damages which would result from a 1% flood on South Babb Creek are estimated to be $895,000. Average annual damages are approximated at $55,000.

The 1% flood event would flood over 1200 homes. There could be 1% flood damages of up to $798,000 because of the inadequate culvert capacity at Lochner Drive.

A breakdown of average annual damage by reach and 1% flood damage is given in Tables A6 and A7 respectively. Note that Table A7 includes floodwaters of less than one foot.

Remedial Measures

Flood Control Elements

Remedial measures proposed in the 1974 East Zone Report to provide 1% flood capacity on South Babb Creek are described below. A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

1. Confluence Lower Silver Creek to Clayton Road - It is proposed that the channel upstream from the confluence with Lower Silver Creek would be concrete-lined

U-frame channel with a width of eight feet. The U-frame channel would extend upstream approximately 4,500 feet to the downstream face of a proposed 8x6 RCB at Clayton Road. The RCB at Clayton Road would be 580 feet long and would replace the existing free span bridge. It is proposed that the existing 6x4 RCB culverts at Farrington Drive and White Road would be replaced with 8x5 RCB culverts. The existing 8x6 RCB culvert at Lochner Drive would remain undisturbed.

2. Clayton Road to Station 90+00) - It is proposed that the channel upstream of the Clayton Road RCB would be a modified floodplain. The modified floodplain would extend 4,000 feet upstream of Clayton Road. The modified floodplain would require construction of low levees set back from the stream banks. Riprap would be placed in the natural channel of the modified floodplain along reaches with potentially erosive velocities.

Upstream of Station 90+00 the channel would remain unimproved.

Cost Estimates

The total cost of the flood control elements is estimated at $2.5 million. Annual operation and maintenance costs are estimated at $10,000. Table A9 gives a summary of the construction costs for the remedial flood control elements proposed on South Babb Creek.

Funding

A breakdown by reach of possible funding sources is given in Table A10.

EAST ZONE REPORT (SOUTH BABB CREEK) TABLE-A1

12/12/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
SOUTH BABB CREEK	CONFL. W/ L.SILVER CR	0.00	4.0	1.0	290.	0.015	TRAPEZOIDAL CONCRETE	0/ 0
SOUTH BABB CREEK	D/S FARRINGTON DR RCB	1.45	6.0	4.0	290.	0.015	BOX CULVERT	0/ 0
SOUTH BABB CREEK	U/S FARRINGTON DR RCB	2.05	4.0	1.0	290.	0.015	TRAPEZOIDAL CONCRETE	0/ 0
SOUTH BABB CREEK	D/S WHITE ROAD RCB	15.00	6.0	4.0	570.	0.015	BOX CULVERT	0/ 0
SOUTH BABB CREEK	U/S WHITE ROAD RCB	16.50	4.0	1.0	570.	0.015	TRAPEZOIDAL CONCRETE	0/ 0
SOUTH BABB CREEK	D/S CLAYTON ROAD	47.00	2.0	1.0	890.	0.030	EXCAVATED EARTH	0/ 0
SOUTH BABB CREEK	D/S CLAYTON ROAD RCB	50.00	6.0	4.0	890.	0.015	BOX CULVERT	0/ 0
SOUTH BABB CREEK	U/S CLAYTON ROAD RCB	50.60	3.0	0.6	890.	0.035	NATURAL - UNMODIFIED	0/ 0
SOUTH BABB CREEK	D/S PINE RIDGE WAY	55.00	3.0	0.8	890.	0.035	NATURAL - UNMODIFIED	0/ 0
SOUTH BABB CREEK	U/S CEDAR FLAT CT	69.00	3.0	0.8	890.	0.035	NATURAL - UNMODIFIED	0/ 0
SOUTH BABB CREEK	U/S SALMON CT	75.00	3.0	0.8	890.	0.035	NATURAL - UNMODIFIED	0/ 0
SOUTH BABB CREEK	D/S N. BRANCH CONFL	115.00	1.5	0.8	890.	0.035	NATURAL - UNMODIFIED	0/ 0
SOUTH BABB CREEK	LIMIT OF JURISDICTION	190.50	LIMIT OF JURISDICTION					

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                    EAST ZONE REPORT (SOUTH BABB CREEK) TABLE-A2                              12/12/84


                                   SUMMARY OF CHANNEL TYPES



                   THERE ARE     0.05  MILES OF   BOX CULVERT

                   THERE ARE     0.85  MILES OF   TRAPEZOIDAL CONCRETE

                   THERE ARE     0.06  MILES OF   EXCAVATED  EARTH

                   THERE ARE     2.65  MILES OF   NATURAL - UNMODIFIED



                   TOTAL         3.61  MILES
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EAST ZONE REPORT (SOUTH BABB CREEK) TABLE-A5

12/12/84

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
SOUTH BABB CREEK CONFL. W/ L.SILVER CR	0.00				NON-ERODING REACH				
SOUTH BABB CREEK D/S FARRINGTON DR RCB	1.45				NON-ERODING REACH				
SOUTH BABB CREEK U/S FARRINGTON DR RCB	2.05				NON-ERODING REACH				
SOUTH BABB CREEK D/S WHITE ROAD RCB	15.00				NON-ERODING REACH				
SOUTH BABB CREEK U/S WHITE ROAD RCB	16.50				NON-ERODING REACH				
SOUTH BABB CREEK D/S CLAYTON ROAD	47.00	3.1	14.1	6.5	2.0	0.388	0.167	2.0	2.0
SOUTH BABB CREEK D/S CLAYTON ROAD RCB	50.00				NON-ERODING REACH				
SOUTH BABB CREEK U/S CLAYTON ROAD RCB	50.60	3.1	15.8	6.5	2.0	0.553	0.164	2.0	2.0
SOUTH BABB CREEK D/S PINE RIDGE WAY	55.00	3.1	15.4	6.5	2.0	0.495	0.161	2.0	2.0
SOUTH BABB CREEK U/S CEDAR FLAT CT	69.00	3.1	12.4	6.6	2.0	0.381	0.164	2.0	2.0
SOUTH BABB CREEK U/S SALMON CT	75.00	3.1	6.2	7.1	1.0	0.087	0.173	1.0	1.0
SOUTH BABB CREEK D/S N. BRANCH CONFL	115.00	3.1	20.0	5.5	2.0	1.324	0.158	2.0	2.0
SOUTH BABB CREEK LIMIT OF JURISDICTION	190.50	LIMIT OF DISTRICT			JURISDICTION				

EAST ZONE REPORT (SOUTH BABB CREEK) TABLE=A6

1/15/85

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS		EXIST CONDITIONS			FREQ OF FLOOD (YEAR)	FLOOD DAMAGES	
				1% CFS	10% CFS	Q1% CFS	CAPCTY CFS	N		1% (IN 1000$)	AVG ANN
S. BABB CREEK U/S CONFL WITH L SILVER	0.00	4.00	0.0	920.	450.	290.	213.	.015	3.	0.0	0.0
S. BABB CREEK D/S FARRINGTON DR RCB	1.45	4.00	0.0	920.	450.	290.	215.	.015	3.	0.0	0.0
S. BABB CREEK U/S FARRINGTON DR RCB	2.05	4.00	0.0	920.	450.	290.	195.	.015	3.	0.0	0.0
S. BABB CREEK D/S WHITE RD RCB	15.00	3.90	0.0	920.	450.	570.	315.	.015	5.	759.0	33.8
S. BABB CREEK U/S WHITE RD RCB	16.50	3.90	0.0	920.	450.	570.	570.	.015	100.	0.0	0.0
S.BABB CREEK D/S LOCHNER RCB	26.00	3.90	0.0	920.	450.	890.	426.	.015	9.	918.0	32.1
S.BABB CREEK U/S LOCHNER	27.00	3.90	0.0	920.	450.	890.	890.	.015	100.	0.0	0.0
S.BABB CREEK D/S CLAYTON RD RCB	47.00	3.90	0.0	920.	450.	890.	890.	.030	100.	0.0	0.0
S. BABB CREEK D/S CLAYTON RD RCB	50.00	3.70	0.0	920.	450.	890.	345.	.015	5.	0.0	0.0
S. BABB CREEK U/S CLAYTON RD.RCB	50.60	3.70	0.0	920.	450.	890.	890.	.035	100.	0.0	0.0
S.BABB CREEK LIMITS OF JURISDICTION	190.50	0.50	LIMIT OF JURISDICTION								

TOTAL AVERAGE ANNUAL DAMAGES ($1000) = 66.

EAST ZONE REPORT (SOUTH BABB CREEK) TABLE=A7 12/12/84

SUMMARY

DAMAGES-INSURANCE-FLOODPROOFING-ACQUISITION

REALESTATE INDEX= 118.0

LAND USE	AREA FLOODED ACRES	NUMBER OF BLDGS	1%FLOOD DAMAGES (1000$)	ANNUAL INSURANCE (1000$/YR)	FLOOD PROOFING (1000$)	FLOODPLAIN ACQUISITION (1000$)
SF RESIDENT	271.	1247.	703.	515.8	12466.	163122.
APT RESID	0.	0.	0.	0.0	0.	0.
MOBILE HOME	0.	0.	0.	0.0	0.	0.
COMMERCIAL	20.	24.	166.	105.7	355.	15123.
INDUSTRIAL	0.	0.	0.	0.0	0.	0.
SCHLS,PUBLC	4.	4.	44.	10.9	99.	5108.
OPEN IMPRVD	14.	0.	3.	0.0	0.	2181.
AGRICULTURE	20.	0.	1.	0.0	0.	3038.
VACLND/S.PND	3.	0.	0.	0.0	0.	498.
TOTAL	331.	1274.	918.	632.4	12920.	189070.

EAST ZONE REPORT (SOUTH BABB CREEK) TABLE-A8 12/12/84

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGULATION	DISCOURAGEMENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCTURE	ENLARGE CULVERT
0.00	XXX	XXX	XXX	XXX	XXX							
1.45	XXX	XXX	XXX	XXX	XXX							XXX
2.05	XXX	XXX	XXX	XXX	XXX							
15.00	XXX	XXX	XXX	XXX	XXX	XXX						XXX
16.50	XXX	XXX	XXX	XXX	XXX							
26.00	XXX	XXX	XXX	XXX	XXX	XXX						
27.00	XXX	XXX	XXX	XXX	XXX							
47.00	XXX	XXX	XXX	XXX	XXX							
50.00	XXX	XXX	XXX	XXX	XXX							XXX
50.60	XXX	XXX	XXX	XXX	XXX							
55.00	XXX	XXX	XXX	XXX	XXX							
69.00	XXX	XXX	XXX	XXX	XXX							
75.00	XXX	XXX	XXX	XXX	XXX							
115.00	XXX	XXX	XXX	XXX	XXX							

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	CONST BYPASS	WATERSHED TREATMENT	CONST DAM/ RESERV	INSTALL SEDIMENT BASIN	EMERGENCY PROCEDURE /WARNING	INSUR REGUL MANAG	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
							INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
0.00						XXX	XXX			XXX	XXX
1.45						XXX	XXX			XXX	XXX
2.05						XXX	XXX			XXX	XXX
15.00			XXX		XXX	XXX	XXX			XXX	XXX
16.50		XXX		XXX		XXX				XXX	
26.00		XXX	XXX	XXX	XXX	XXX	XXX			XXX	XXX
27.00		XXX		XXX		XXX				XXX	
47.00		XXX		XXX		XXX				XXX	
50.00						XXX	XXX			XXX	XXX
50.60						XXX				XXX	
55.00						XXX				XXX	
69.00						XXX				XXX	
75.00						XXX				XXX	
115.00						XXX				XXX	

ELEMENTS (I.E. PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF SOUTH BABB CREEK
BETWEEN 190.50 AND 115.00

REGULATION TO PREVENT OCCURANCE OF PROBLEM
DISCOURAGEMENT OF INAPPROPRIATE LAND USES
PUBLIC ACQUISITION OF FULL FLOODPLAIN
REMOVAL OF ENDANGERED STRUCTURES
FLOODPROOFING OF STRUCTURES INFLOODPLAIN
FLOOD INSURANCE; REGULATION + MANAGEMENT

EAST ZONE REPORT (SOUTH BABB CREEK) TABLE-A9 12/13/84

-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	10.2	$20,400
EARTHWORK				
-Excavate	$2.00	C.Y.	24772	$49,544
-Compaction	$4.00	C.Y.	3363	$13,452
CHANNEL LINING				
-Vertical Walls	$350.00	C.Y.	2763	$967,050
STRUCTURAL				
-Culvert (RCB)	$350.00	C.Y.	592	$207,200
MISCELLANEOUS				
-Remove Exist Conc Lining	$2.50	L.F.	4500	$11,250
				$0
REVEGETATION	$10,000.00	L.S.	-----	$10,000
-SUBTOTAL-				$1,278,896
MOBILIZATION (5%)				$63,945
CONSTRUCTION CONTINGENCES (10%)				$127,890
-TOTAL CONSTRUCTION COSTS-				$1,470,730
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$264,731
RIGHT OF WAY	$50,000	ACRE	10.2	$510,000

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $2,245,462

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

BERRYESSA CREEK (4017)

Watershed Description

The Berryessa Creek Watershed comprises approximately 22 square miles. The watercourse is approximately 9.7 miles from the confluence with Lower Penitencia Creek to the limit of District jurisdiction. Berryessa Creek is located within the cities of Milpitas and San Jose, and unincorporated areas of Santa Clara County. Channel characteristics on Berryessa Creek are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

There is 1,000 feet of moderate quality riparian habitat identified on Berryessa Creek downstream of Old Piedmont Road. Berryessa Creek has 6,440 feet of channel which provides incidental groundwater recharge. Berryessa Creek Park is a developed recreational facility located at Station 260+00. A description and a summary of environmental conditions and multipurpose uses are given in Tables A3 and A4 respectively.

Erosion and Sediment

There are two reaches with observed erosion greater than one foot on Berryessa Creek. The second reach begins at Old Piedmont Road and extends downstream to the Piedmont-Cropley Road intersection. The first reach begins at Calaveras Boulevard and extends upstream to Montague Expressway. Tractive force analysis indicates that there are potentially erosive velocities along Milpitas Boulevard and downstream of Piedmont Road. A summary of observed and potential erosion is given in Table A5.

Substantial sediment deposition is occurring from Station 0+00 to Station 30+00 on Berryessa Creek.

Flood Damage Potential

One Percent Flooding

For the 1% event, the Old Piedmont Road culvert is inadequate. The channel flowrate just upstream of the Morrill Avenue culvert is 2,830 cfs. Out of this total, 250 cfs would be contributed by the Crosley Creek outfall pipe, and 435 cfs by the Sierra Creek confluence. At the Morrill Avenue culvert, there would be overbanking from the channel of 1,240 cfs due to inadequate culvert capacity. The majority of the floodwater (1,130 cfs) would flow southwest along Cropley Avenue, while 110 cfs of the floodwater would reenter the channel just downstream of Cropley Avenue. The floodwaters running down Cropley Avenue would result in shallow flooding behind Interstate 680 as far north as the Interstate 680 off-ramp at Landess Avenue, and would result in scattered flooding in the residential areas south of the channel. Eventually 900 cfs of the floodwater would reenter the channel from the south bank just upstream of Interstate 680 (Station 204 + 00). The channel flowrate just downstream of Interstate 680, would be 2,595 cfs. Out of this total, 1,695 cfs is in the channel downstream of Cropley Avenue, plus the 900 cfs of returned overbanking flow. Note that the box culvert at Cropley Avenue is inadequate to pass the 1% design flow of 2,830 cfs, but because of the upstream spill at Morrill Avenue, no overbanking occurs with the 1,695 cfs left in the channel.

Beginning at the double box culvert under Montague Expressway, overbanking would occur along the channel for 1,600 feet extending upstream. Some ponding would occur behind the bank on the east side of the channel. On the west side of the channel, 1,690 cfs of the floodwater would travel as sheetflow across industrial land to the Western Pacific Railroad tracks. Near the intersection of Montague Expressway and Capitol Avenue the floodwaters would combine with 150 cfs of floodwater coming down Capitol Avenue from Upper Penitencia Creek. At this point, the combined floodwaters would split into two parts: with 1,020 cfs continuing west across the Western Pacific Railroad tracks; while the remaining 820 cfs flows north along the railroad tracks. The floodwaters which cross the railroad tracks then split; with 160 cfs flowing north toward the Ford Plant, 110 cfs flowing west into Lower Penitencia Creek, and 750 cfs flowing southeast along Montague Expressway into East Penitencia Creek. The second part of the Berryessa Creek floodwaters (820 cfs), which flow north along the east side of the Western Pacific Railroad tracks, splits into two parts near the Ford plant: with 380 cfs crossing the railroad tracks and continuing north on the west side of the tracks, eventually diminishing to 290 cfs; while the remaining 440 cfs continues north on the east side of the tracks.

Downstream of Montague Expressway, a flowrate of 720 cfs remains in the channel. This is augmented by 220 cfs of local inflow, 760 cfs from Piedmont Creek, and 1,115 cfs from Los Coches Creek. The reach between the confluences with Piedmont Creek and Los Coches Creek has inadequate channel capacity. Overbanking would occur from approximately 300 feet downstream of the confluence with Los Coches Creek back upstream 2,350 feet to just below the Piedmont Creek confluence. All of the overbanking would occur on the west bank of the creek. A 1,115 cfs of the floodwaters would travel as sheetflow across an industrial park, and combine with the 440 cfs of floodwater flowing north along the east side of the Western Pacific Railroad tracks from earlier upstream overbanking on Berryessa Creek and Upper Penitencia Creek. The combined floodwaters (1,555 cfs) then flow west over the Western Pacific Railroad tracks toward Lower Penitencia Creek and Montague Expressway, diminishing to 1,290 cfs. Along the way, the floodwaters combine with the 290 cfs of floodwater flowing north on the west side of the tracks from earlier upstream overbanking on Berryessa Creek and Upper Penitencia Creek. The combined floodwaters (1,580 cfs) then cross Lower Penitencia Creek upstream of San Antonio Drive and pond on the old Dixon Landing golf course. The entire subdivision between the Western Pacific Railroad tracks and Lower Penitencia Creek would be flooded, with floodwaters eventually reaching the confluence of Lower Penitencia Creek and Berryessa Creek at the north end of the subdivision.

Downstream of Calaveras Boulevard to the confluence with Lower Penitencia Creek the channel has adequate capacity to pass the 1% flood event.

A summary of channel capacities is given in Table A6.

Flooding Damages

The 1% flood event would cause estimated damages of $28.5 million resulting from extensive shallow flooding of industrial areas, and from flooding of up to three feet deep in the residential subdivision east of Lower Penitencia Creek. Average annual damages are approximated at $2.6 million. A breakdown of average annual damage by reach and potential 1% flood damage is given in Tables A6 and A7 respectively. Note that Table A7 includes floodwaters of less than one foot.

Remedial Measures

Flood Control Elements

To provide 1% flood protection on Berryessa Creek, the U.S. Army Corps of Engineers proposes modifying six culverts, and 21,000 feet of channel. The Corps of Engineers involvement with Berryessa Creek is discussed in the section entitled "Funding Analysis". A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

1. Lower Reach (Sta. 87+00 to Sta. 223+00) - A new concrete-lined channel is proposed at Calaveras Boulevard (Station 87+00), and would extend upstream to Station 200+40 (200 feet downstream of Interstate 680 bridge crossing). The channel geometry for this reach will consist of both rectangular sections and trapezoidal sections with varying bottom widths and side slopes. The channel design inverts would be tied into three existing culverts, one proposed railroad culvert near Station 175+20 (Union Pacific Railroad), and three existing bridge crossings.

2. Middle Reach (Sta. 224+10 to Sta. 285+68) - A 21-foot rectangular concrete-lined channel, with ten foot vertical walls, would tie into the upstream face of the existing

culvert at Cropley Avenue (Station 224+00), and extend upstream to Station 232+78. Between Stations 224+10 and 232+78, a new channel invert is proposed that will eliminate the existing five-foot drop structure at Station 232+78. From Station 232+04 upstream to the downstream face of the Morrill Avenue culvert the existing 24 foot rectangular concrete-lined channel would be modified to maintain a ten foot wall height. A ten foot rectangular concrete-lined inlet structure is proposed for the Sierra Creek confluence.

A rectangular concrete-lined channel would be constructed between Stations 234+88 and 238+40, with a bottom width of 15 feet and a vertical wall height of 11 feet.

A bypass channel would extend upstream from Station 240+00 to a proposed secondary sediment basin downstream of the Piedmont Road-Cropley Avenue intersection. The bypass channel would consist of a trapezoidal channel with a 1.5 foot by ten foot rectangular pilot channel. The proposed sediment basin would have an average depth of 12 feet and an approximate length of 144 feet. A rectangular concrete-lined channel would extend upstream from the sediment basin to the existing culvert under Cropley Avenue.

3. Upper Reach (Sta. 289+88 to Sta. 297+00) - The proposed design for this reach is reinforced concrete-lined rectangular section with a bottom width of 12 feet and vertical wall height of eight feet. At Old Piedmont Road the existing culvert would be replaced with an eight foot by ten foot reinforced double box culvert.

4. Above Old Piedmont Road - The proposed design recommends a primary sediment basin with an average depth of 14 feet and an approximate length of 390 feet. Flows would be confined to the new basin and will be diverted to the new channel system. Upstream of the sediment basin the natural stream alignment would be changed so that stream flow is normal to the face of the channel.

Cost Estimates

The total cost of the flood control elements is estimated at $11.4 million including $160 thousand in non-federal funds. Annual operation and maintenance costs, estimated at $50,000, pertain to the concrete channels, service roads, sediment basins, siphons, and the establishment of riparian vegetation. These costs are based on November 1984 price levels and are given in Table A9. The unit prices for the items shown in Table A9 were determined by the Corps of Engineers.

Funding

Anticipating a favorable benefit-cost ratio, the District made a request to the U.S. Army Corps of Engineers for federal assistance under the Section 205 program in January 1981. The proposed project limits are from Calaveras Boulevard to 300 feet upstream of Old Piedmont Road. The 205 study, conducted by the Sacramento District, estimated the cost of the project to be $11.5 million. Because this exceeds the $4.0 million limit for 205 projects, the local cost would have been $7.5 million. The study has been transferred to the San Francisco District in June 1984, and will be continued under the Guadalupe and Adjacent Streams authorization. Table A10 illustrates how the potential for federal involvement was identified.

EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A1 12/12/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
BERRYESSA CREEK	CONFL.W/ L.PENITENCIA	0.00	44.0	3.3	2350.	0.035	EARTHLEVEES	5/77
BERRYESSA CREEK	CONFL.W/ CALERA CREEK	9.50	44.0	3.3	2730.	0.035	EARTHLEVEES	5/77
BERRYESSA CREEK	U/S CALERA CREEK CONFL	10.00	44.0	3.3	2730.	0.035	EARTHLEVEES	5/77
BERRYESSA CREEK	U/S CALERA CREEK CONFL	15.00	44.0	3.3	2730.	0.035	EARTHLEVEES	5/77
BERRYESSA CREEK	D/S ABEL STREET	22.00	32.0	1.0	2350.	0.020	TRAPEZOIDAL CONCRETE	5/77
BERRYESSA CREEK	U/S ABEL STREET	29.00	44.0	3.3	2350.	0.035	EARTHLEVEES	5/77
BERRYESSA CREEK	D/S MILPITAS BLVD	49.00	44.0	3.3	2350.	0.035	EARTHLEVEES	5/77
BERRYESSA CREEK	CONFL.W/ TULARCITOS CR	76.00	44.0	4.0	2120.	0.035	EARTHLEVEES	5/77
BERRYESSA CREEK	U/S TULARCITOS CR CONFL	76.50	44.0	4.0	2120.	0.035	EXCAVATED EARTH	5/77
BERRYESSA CREEK	D/S CALAVERAS BLVD RCB	87.00	44.0	9.0	1660.	0.015	BOX CULVERT	5/69
BERRYESSA CREEK	U/S CALAVERAS BLVD RCB	90.00	5.0	1.0	1660.	0.035	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	CONFL.W/ LOS COCHES CK	93.50	5.0	1.0	800.	0.035	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	U/S LOS COCHES CR CONFL	94.00	5.0	1.0	2960.	0.035	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	CONFL.W/ PIEDMONT CR	115.50	5.0	1.0	1500.	0.035	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	U/S PIEDMONT CR CONFL	116.00	5.0	1.0	940.	0.035	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	YOSEMITE DR	125.00	5.0	1.0	940.	0.035	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	D/S AMES AVE	138.00	4.0	1.0	940.	0.035	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	U/S AMES AVE	143.00	4.0	1.0	940.	0.030	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	MILPITAS BLVD	151.00	5.0	1.0	940.	0.030	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	WESTERN PACIFIC R.R.	162.00	5.0	1.0	940.	0.030	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	D/S MONTAGUE EXPRESS	166.50	22.0	9.0	940.	0.015	BOX CULVERT	0/ 0
BERRYESSA CREEK	U/S MONTAGUE EXPRESS	167.00	5.0	1.0	2600.	0.030	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	D/S CONCRETE BEND	176.00	5.0	1.0	2600.	0.015	TRAPEZOIDAL CONCRETE	11/80
BERRYESSA CREEK	U/S CONCRETE BEND	179.00	10.0	1.0	2600.	0.030	EXCAVATED EARTH	11/80

EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A1

12/12/84

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
BERRYESSA CREEK	D/S FWY 680	201.00	20.0	1.5	2600.	0.015	TRAPEZOIDAL CONCRETE	11/80
BERRYESSA CREEK	U/S FWY 680	205.00	14.0	1.0	1700.	0.015	TRAPEZOIDAL CONCRETE	0/ 0
BERRYESSA CREEK	D/S CROPLEY RCB	222.00	20.0	8.0	1700.	0.015	BOX CULVERT	0/ 0
BERRYESSA CREEK	U/S CROPLEY RCB	223.00	14.0	1.0	1590.	0.030	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	D/S MORRILL AVE. RCB	232.40	20.0	8.5	2580.	0.015	BOX CULVERT	0/ 0
BERRYESSA CREEK	U/S MORRILL AVE. RCB	233.00	6.0	1.5	2580.	0.030	EXCAVATED EARTH	0/ 0
BERRYESSA CREEK	U/S SIERRA CR CONFL	237.50	20.0	0.0	2000.	0.015	U-FRAME CONCRETE	0/ 0
BERRYESSA CREEK	D/S MOD. FLOOD PLAIN	239.00	4.0	16.0	2000.	0.030	MODIFIED FLOOD PLAIN	0/ 0
BERRYESSA CREEK	MODIFIED FLOOD PLAIN	252.00	4.0	16.0	2000.	0.030	MODIFIED FLOOD PLAIN	0/ 0
BERRYESSA CREEK	D/S PIEDMONT RCB	286.00	12.0	7.0	1580.	0.015	BOX CULVERT	0/ 0
BERRYESSA CREEK	U/S PIEDMONT RCB	290.34	3.0	1.0	1580.	0.035	NATURAL - UNMODIFIED	0/ 0
BERRYESSA CREEK	LIMIT OF JURISDICTION	510.00	LIMIT OF JURISDICTION					

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                 EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A2                        12/12/84

                             SUMMARY OF CHANNEL TYPES

                   THERE ARE     0.18  MILES OF   BOX CULVERT

                   THERE ARE     0.03  MILES OF   U-FRAME CONCRETE

                   THERE ARE     0.59  MILES OF   TRAPEZOIDAL CONCRETE

                   THERE ARE     1.32  MILES OF   EARTHLEVEES

                   THERE ARE     2.50  MILES OF   EXCAVATED  EARTH

                   THERE ARE     0.89  MILES OF   MODIFIED FLOOD PLAIN

                   THERE ARE     4.16  MILES OF   NATURAL - UNMODIFIED


                   TOTAL         9.66  MILES
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EAST ZONE REPORT (BERRYESSA CREEK) TABLE=A3 12/12/84

CHANNEL ENVIRONMENTAL CONDITIONS

			HABITAT TYPE								MULTIPURPOSES	
CREEK	LOCATION	STATION	NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOOD-LAND	RIPAR-IAN	VEGETA-TIVE QUANTITY	HABITAT QUALITY	GW RECHG	RECRE-ATION
BERRYESSA CREEK	L PENITENCIA CRK	0.00			X				MODERATE	MODERATE		
BERRYESSA CREEK	D/S N MILPITAS BLV	50.00		X		X			MODERATE	MODERATE		
BERRYESSA CREEK	D/S CALAVERAS BLVD	87.00	X						NONE	VERY LOW		
BERRYESSA CREEK	U/S CALAVERAS BLVD	88.00		X		X			SPARSE	LOW		
BERRYESSA CREEK	D/S FWY 680	202.00	X						NONE	VERY LOW		
BERRYESSA CREEK	U/S FWY 680	205.00	X						NONE	VERY LOW		
BERRYESSA CREEK	D/S CROPLEY AVE	222.00	X						NONE	VERY LOW		
BERRYESSA CREEK	U/S CROPLEY AVE	226.60		X		X			SPARSE	LOW	X	
BERRYESSA CREEK	D/S MORRILL AVE	232.30	X						NONE	VERY LOW		
BERRYESSA CREEK	U/S MORRILL AVE	233.00	X						NONE	VERY LOW	X	
BERRYESSA CREEK	SIERRA CRK CONF	234.00		X		X			SPARSE	LOW	X	
BERRYESSA CREEK	600'U/S MORRILL AV	240.00						X	SPARSE	MODERATE	X	
BERRYESSA CREEK	MAJESTIC WY SCHOOL	270.00						X	SPARSE	MODERATE	X	
BERRYESSA CREEK	300'D/S PIEDMONT	285.00				X		X	SPARSE	MODERATE	X	
BERRYESSA CREEK	D/S PIEDMONT RD	288.00	X						NONE	VERY LOW		
BERRYESSA CREEK	U/S CROPLEY @ PIED	291.00				X			MODERATE	MODERATE	X	
BERRYESSA CREEK	LIMIT OF JURISDICT	510.00	LIMITS OF JURISDICTION									

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                    EAST ZONE REPORT (BERRYESSA CREEK) TABLE=A4                          12/12/84

                    SUMMARY OF CHANNEL ENVIRONMENTAL CONDITIONS

                THIS SUMMARY INCLUDES A TOTAL OF      9.66  MILES  OF CHANNEL.

                HABITAT TYPES:

                     THERE ARE      0.57  MILES OF NO SIGNIFICANT HABITAT

                     THERE ARE      3.08  MILES OF FRESHWATER MARSH

                     THERE ARE      0.95  MILES OF SALT/BRACKISH MARSH

                     THERE ARE      7.29  MILES OF GRASSLAND HABITAT

                     THERE ARE      0.91  MILES OF RIPARIAN HABITAT

                QUANTITY OF VEGETATION:

                     THERE ARE      0.57  MILES WITH NO VEGETATION

                     THERE ARE      3.29  MILES WITH SPARSE VEGETATION

                     THERE ARE      5.80  MILES WITH MODERATE VEGETATION

                     THERE ARE      0.57  MILES WITH VERY LOW QUALITY HABITAT

                     THERE ARE      2.38  MILES WITH LOW QUALITY HABITAT

                     THERE ARE      6.70  MILES WITH MODERATE QUALITY HABITAT

                THERE ARE      5.30  MILES WHICH PROVIDE GROUNDWATER RECHARGE
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EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
BERRYESSA CREEK CONFL.W/ L.PENITENCIA	0.00	3.1	2.5	5.1	1.0	0.010	0.086	1.0	1.0
BERRYESSA CREEK CONFL.W/ CALERA CREEK	9.50	3.1	3.7	5.0	1.0	0.022	0.086	1.0	1.0
BERRYESSA CREEK U/S CALERA CREEK CONFL	10.00	3.1	3.8	5.0	1.0	0.023	0.086	1.0	1.0
BERRYESSA CREEK U/S CALERA CREEK CONFL	15.00	3.1	4.1	6.7	1.0	0.027	0.127	1.0	1.0
BERRYESSA CREEK D/S ABEL STREET	22.00				NON-ERODING REACH				
BERRYESSA CREEK U/S ABEL STREET	29.00	3.1	4.2	6.6	1.0	0.029	0.143	1.0	1.0
BERRYESSA CREEK D/S MILPITAS BLVD	49.00	3.1	5.5	6.4	1.0	0.051	0.114	1.0	1.0
BERRYESSA CREEK CONFL.W/ TULARCITOS CR	76.00	3.2	6.6	6.1	2.0	0.065	0.116	1.0	2.0
BERRYESSA CREEK U/S TULARCITOS CR CONFL	76.50	3.2	6.8	6.1	2.0	0.069	0.116	1.0	2.0
BERRYESSA CREEK D/S CALAVERAS BLVD RCB	87.00				NON-ERODING REACH				
BERRYESSA CREEK U/S CALAVERAS BLVD RCB	90.00	3.3	20.0	6.3	2.0	0.736	0.145	2.0	3.2
BERRYESSA CREEK CONFL.W/ LOS COCHES CK	93.50	3.3	7.7	6.6	2.0	0.103	0.151	1.0	3.2
BERRYESSA CREEK U/S LOS COCHES CR CONFL	94.00	3.3	7.7	9.4	1.0	0.103	0.151	1.0	1.0
BERRYESSA CREEK CONFL.W/ PIEDMONT CR	115.50	3.3	16.0	6.5	2.0	0.452	0.150	2.0	3.2
BERRYESSA CREEK U/S PIEDMONT CR CONFL	116.00	3.3	8.5	6.6	2.0	0.126	0.152	1.0	3.2
BERRYESSA CREEK YOSEMITE DR	125.00	3.3	15.4	6.2	2.0	0.441	0.144	2.0	3.2

EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A5

12/12/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOWABLE VELOCITY ALLOW FT/SEC	ALLOWABLE VELOCITY CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	TRACTIVE FORCE ALLOW LB/SF	TRACTIVE FORCE CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
BERRYESSA CREEK D/S AMES AVE	138.00	3.4	14.1	6.4	2.0	0.375	0.151	2.0	3.2
BERRYESSA CREEK U/S AMES AVE	143.00	3.4	14.1	6.4	2.0	0.375	0.151	2.0	3.2
BERRYESSA CREEK MILPITAS BLVD	151.00	3.3	12.0	6.4	2.0	0.260	0.147	2.0	3.2
BERRYESSA CREEK WESTERN PACIFIC R.R.	162.00	3.1	11.2	6.5	2.0	0.224	0.148	2.0	2.0
BERRYESSA CREEK D/S MONTAGUE EXPRESS	166.50				NON-ERODING REACH				
BERRYESSA CREEK U/S MONTAGUE EXPRESS	167.00	3.1	12.3	7.1	2.0	0.264	0.189	2.0	2.0
BERRYESSA CREEK D/S CONCRETE BEND	176.00				NON-ERODING REACH				
BERRYESSA CREEK U/S CONCRETE BEND	179.00	3.2	12.6	6.6	2.0	0.245	0.172	2.0	2.0
BERRYESSA CREEK D/S FWY 680	201.00				NON-ERODING REACH				
BERRYESSA CREEK U/S FWY 680	205.00				NON-ERODING REACH				
BERRYESSA CREEK D/S CROPLEY RCB	222.00				NON-ERODING REACH				
BERRYESSA CREEK U/S CROPLEY RCB	223.00	3.2	10.2	6.5	2.0	0.154	0.162	1.0	2.0
BERRYESSA CREEK D/S MORRILL AVE. RCB	232.40				NON-ERODING REACH				
BERRYESSA CREEK U/S MORRILL AVE. RCB	233.00	3.2	9.2	7.0	2.0	0.129	0.187	1.0	2.0
BERRYESSA CREEK U/S SIERRA CR CONFL	237.50				NON-ERODING REACH				
BERRYESSA CREEK D/S MOD. FLOOD PLAIN	239.00	3.2	1.2	6.9	1.0	0.004	0.180	1.0	1.0
BERRYESSA CREEK MODIFIED FLOOD PLAIN	252.00	3.2	1.2	2.6	1.0	0.008	0.088	1.0	1.0

EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A5

12/12/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
BERRYESSA CREEK D/S PIEDMONT RCB	286.00				NON-ERODING REACH				
BERRYESSA CREEK U/S PIEDMONT RCB	290.34	3.3	12.2	2.6	2.0	0.558	0.102	2.0	3.2
BERRYESSA CREEK LIMIT OF JURISDICTION	510.00	LIMIT OF DISTRICT			JURISDICTION				

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS 1% CFS	DESIGN FLOWS 10% CFS	EXIST CONDITIONS Q1% CFS	EXIST CONDITIONS CAPCTY CFS	N	FREQ OF FLOOD (YEAR)	FLOOD DAMAGES 1% (IN 1000$)	FLOOD DAMAGES AVG ANN (IN 1000$)
BERRYESSA CREEK CONFL WITH L.PENITENCIA	0.00	22.05	0.0	4900.	2900.	2350.	5800.	.035	324.	0.0	0.0
BERRYESSA CREEK D/S CALERA CR	9.50	22.05	0.0	5600.	3200.	2730.	5800.	.035	123.	0.0	0.0
BERRYESSA CREEK D/S ABEL ST (DITCH)	22.00	19.12	0.0	4900.	2900.	2350.	5800.	.020	324.	0.0	0.0
BERRYESSA CREEK U/S ABLE ST	29.00	17.58	0.0	4500.	2600.	2350.	5800.	.035	727.	0.0	0.0
BERRYESSA CREEK D/S TULARCITOS CREEK	76.00	15.07	0.0	4500.	2600.	2120.	5800.	.035	727.	0.0	0.0
BERRYESSA CREEK U/S TULARCITOS CREEK	77.50	15.07	0.0	4000.	2300.	1660.	5800.	.035	1000.	0.0	0.0
BERRYESSA CREEK D/S CALAVERAS BLVD RCB	87.00	15.07	0.0	4000.	2300.	1660.	4621.	.015	226.	0.0	0.0
BERRYESSA CREEK U/S CALAVERAS BLVD RCB	90.00	15.07	0.0	4000.	2300.	1660.	2360.	.035	100.	0.0	0.0
BERRYESSA CREEK D/S LOS COCHES CR	93.50	15.07	0.0	4000.	2300.	800.	800.	.035	100.	545.0	5.5
BERRYESSA CREEK U/S LOS COCHES CR	94.00	11.05	0.0	3000.	1700.	2960.	800.	.035	2.	23435.0	1138.4
BERRYESSA CREEK D/S PIEDMONT CR	115.50	11.05	0.0	3000.	1700.	1500.	1860.	.035	100.	0.0	0.0
BERRYESSA CREEK U/S PIEDMONT CR	116.00	9.12	0.0	2600.	1400.	940.	1310.	.035	100.	0.0	0.0
BERRYESSA CREEK U/S AMES U/S RR TRACKS	143.00	9.12	0.0	2600.	1400.	940.	1310.	.030	100.	0.0	0.0
BERRYESSA CREEK D/S MONTAGUE EXPWY RCB	166.50	9.12	0.0	2600.	1400.	940.	1854.	.015	100.	0.0	0.0
BERRYESSA CREEK U/S MONTAGUE EXPWY RCB	167.00	8.76	0.0	2600.	1400.	2595.	1278.	.030	8.	7326.0	269.0
BERRYESSA CREEK BEGIN CONCRETE BEND	176.00	8.76	0.0	2600.	1400.	2595.	1278.	.015	8.	2442.0	89.7

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                                        EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A6                                      1/15/85

         CREEK                             DRAIN    MEAN     DESIGN FLOWS    EXIST CONDITIONS    FREQ OF     FLOOD DAMAGES
           LOCATION                STATION  AREA    ANNUAL     1%     10%      Q1%  CAPCTY   N    FLOOD        1%    AVG ANN
                                           SQ MI   PRECIP     CFS    CFS      CFS    CFS         (YEAR)      (IN 1000$)

    BERRYESSA CREEK
       END CONCRETE BEND            179.00    8.76      0.0     2600.  1400.    2595.  1843. .030     22.   17908.0    391.6

    BERRYESSA CREEK
       D/S FWY 680                  201.00    8.76      0.0     2600.  1400.    2595.  8341. .015   1000.       0.0      0.0

    BERRYESSA CREEK
       U/S FWY 680                  205.00    8.76      0.0     2600.  1400.    1695.  4525. .015   1000.       0.0      0.0

    BERRYESSA CREEK
       D/S CROPLEY AVE RCB          222.00    8.76      0.0     2600.  1400.    1695.  8125. .015   1000.       0.0      0.0

    BERRYESSA CREEK
       U/S CROPLEY AVE RCB          223.00    7.99      0.0     2580.  1300.    1590.  3154. .030    274.       0.0      0.0

    BERRYESSA CREEK
       D/S MORRILL AVE RCB          232.40    7.70      0.0     2580.  1200.    2580.  1400. .015     13.     846.0     24.8

    BERRYESSA CREEK
       U/S MORRILL AVE RCB          233.00    7.70      0.0     2580.  1200.    2580.  2360. .030     65.       0.0      0.0

    BERRYESSA CREEK
       U/S SIERRA CONFL.            237.50    5.93      0.0     2000.   950.    2000.  3645. .015   1000.       0.0      0.0

    BERRYESSA CREEK
       U/S SIERRA-END UFRAME        239.00    5.93      0.0     2000.   950.    2000.  2000. .030    100.       0.0      0.0

    BERRYESSA CREEK
       U/S CROSLEY CREEK            260.00    5.00      0.0     1800.   770.    1780.  1780. .030    100.       0.0      0.0

    BERRYESSA CREEK
       U/S SWIEGART OUTFALL         278.00    4.51      0.0     1600.   700.    1580.  1580. .030    100.       0.0      0.0

    BERRYESSA CREEK
       D/S PIEDMONT AVE RCB         286.00    4.51      0.0     1600.   700.    1580.  1000. .015     21.       0.0      0.0

    BERRYESSA CREEK
       U/S PIEDMONT ROAD RCB        290.34    4.51      0.0     1600.   700.    1580.  1580. .035    100.       0.0      0.0

    BERRYESSA CREEK
       LIMITS OF JURISDICTION       510.00    0.63      0.0      220.   100.     250.   250. .035    194.       0.0      0.0

     TOTAL AVERAGE ANNUAL DAMAGES ($1000) =    1919.
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                   EAST ZONE REPORT (BERRYESSA CREEK) TABLE=A7                                                12/12/84

                                          S U M M A R Y


                   DAMAGES=INSURANCE=FLOODPROOFING=ACQUISITION

 REALESTATE INDEX= 118.0

                                 AREA      NUMBER    1%FLOOD    ANNUAL       FLOOD      FLOODPLAIN
 LAND USE                       FLOODED      OF      DAMAGES    INSURANCE    PROOFING   ACQUISITION
                                 ACRES     BLDGS     (1000$)    (1000$/YR)   (1000$)    (1000$)



     SF RESIDENT                  356.     1635.     19272.        700.8     16353.       221822.
     APT RESID                     30.      236.      3115.        139.5       351.        42854.
     MOBILE HOME                    0.        0.         0.          0.0         0.            0.
     COMMERCIAL                    34.       31.      1009.        136.6       563.        26046.
     INDUSTRIAL                   273.       84.      5323.        261.4      1699.       142611.
     SCHLS,PUBLC                   14.        6.       431.         17.2       391.       158859.
     OPEN IMPRVD                  215.        0.        47.          0.0         0.        35434.
     AGRICULTURE                  191.        0.        10.          0.0         0.        31403.
     VACLND/S.PND                 130.        0.         0.          0.0         0.        24432.


     TOTAL                       1243.     1991.     29208.       1255.4     19357.       683461.
```

S U M M A R Y

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGU-LATION	DIS-COURAGE-MENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCT-URE	ENLARGE CULVERT
0.00	XXX	XXX										
9.50	XXX	XXX										
10.00	XXX	XXX										
15.00	XXX	XXX										
22.00	XXX	XXX										
29.00	XXX	XXX										
49.00	XXX	XXX										
50.00	XXX	XXX										
76.00	XXX	XXX										
76.50	XXX	XXX										
77.50	XXX	XXX										
87.00	XXX	XXX										
88.00	XXX	XXX										
90.00	XXX	XXX	XXX	XXX	XXX							
93.50	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
94.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
115.50	XXX	XXX	XXX	XXX	XXX		XXX					
116.00	XXX	XXX	XXX	XXX	XXX							
125.00	XXX	XXX	XXX	XXX	XXX		XXX					
138.00	XXX	XXX	XXX	XXX	XXX		XXX					
143.00	XXX	XXX	XXX	XXX	XXX		XXX					
151.00	XXX	XXX	XXX	XXX	XXX		XXX					
162.00	XXX	XXX	XXX	XXX	XXX		XXX					
166.50	XXX	XXX	XXX	XXX	XXX							XXX
167.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
176.00	XXX	XXX	XXX	XXX	XXX	XXX						
179.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
201.00	XXX	XXX										
202.00	XXX	XXX										
205.00	XXX	XXX										
222.00	XXX	XXX										
223.00	XXX	XXX										
226.60	XXX	XXX										
232.30	XXX	XXX										
232.40	XXX	XXX	XXX	XXX	XXX	XXX						XXX
233.00	XXX	XXX	XXX	XXX	XXX							
234.00	XXX	XXX	XXX	XXX	XXX							
237.50	XXX	XXX										
239.00	XXX	XXX										
240.00	XXX	XXX										
252.00	XXX	XXX										
260.00	XXX	XXX	XXX	XXX	XXX							
270.00	XXX	XXX	XXX	XXX	XXX							
278.00	XXX	XXX	XXX	XXX	XXX							
285.00	XXX	XXX	XXX	XXX	XXX							
286.00	XXX	XXX	XXX	XXX	XXX							XXX

EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A8 12/12/84

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	CONST BYPASS	WATERSHED TREATMENT	CONST DAM/ RESERV	INSTALL SEDIMENT BASIN	EMERGENCY PROCEDURE /WARNING	INSUR REGUL MANAG	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
							INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
0,00											
9,50											
10,00											
15,00											
22,00											
29,00											
49,00											
50,00											
76,00											
76,50											
77,50											
87,00											
88,00											
90,00						XXX				XXX	
93,50		XXX		XXX	XXX	XXX				XXX	
94,00		XXX		XXX	XXX	XXX	XXX			XXX	XXX
115,50						XXX				XXX	
116,00		XXX		XXX		XXX				XXX	
125,00						XXX				XXX	
138,00						XXX				XXX	
143,00		XXX		XXX		XXX				XXX	
151,00						XXX				XXX	
162,00		XXX		XXX		XXX				XXX	
166,50		XXX		XXX		XXX				XXX	
167,00		XXX		XXX	XXX	XXX	XXX			XXX	XXX
176,00					XXX	XXX	XXX			XXX	XXX
179,00		XXX		XXX	XXX	XXX	XXX			XXX	XXX
201,00											
202,00											
205,00											
222,00											
223,00											
226,60											
232,30											
232,40			XXX		XXX	XXX	XXX			XXX	XXX
233,00						XXX	XXX			XXX	XXX
234,00						XXX	XXX			XXX	XXX
237,50											
239,00											
240,00											
252,00											
260,00						XXX				XXX	
270,00						XXX				XXX	
278,00						XXX				XXX	
285,00						XXX				XXX	
286,00						XXX	XXX			XXX	XXX

EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A8 12/12/84

STATION	REGULATION	DISCOURAGEMENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCTURE	ENLARGE CULVERT
288.00	XXX	XXX	XXX	XXX	XXX							XXX
290.34	XXX	XXX	XXX	XXX	XXX							
291.00	XXX	XXX	XXX	XXX	XXX							

```
                                        EAST ZONE REPORT (BERRYESSA CREEK) TABLE=A8                                  12/12/84

     STATION     CONST     WATERSHED   CONST     INSTALL    EMERGENCY   INSUR       **DOWNSTREAM CONFLICTS***       **CAPACITY < **
                 BYPASS    TREATMENT   DAM/      SEDIMENT   PROCEDURE   REGUL       INDUCE   RECHARGE    ENVIRON     DESIGN     EXIST
                                       RESERV    BASIN      /WARNING    MANAG       FLOOD    /EROSION    QUALITY      Q1%        Q1%

     288.00                                                              XXX        XXX                               XXX        XXX
     290.34                                                              XXX                                          XXX
     291.00                                                              XXX                                          XXX


        ELEMENTS (I.E. PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF BERRYESSA CREEK
                  BETWEEN   510.00 AND   291.00

                 REGULATION TO PREVENT OCCURANCE OF PROBLEM
                 DISCOURAGEMENT OF INAPPROPRIATE LAND USES
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EAST ZONE REPORT (BERRYESSA CREEK) TABLE-A9 12/13/84

-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$90,000.00	L.S.	------	$90,000
EARTHWORK				
-Dewatering	$50,000.00	L.S.	------	$50,000
-Excavate	$3.70	C.Y.	227550	$841,935
-Fill	$12.50	C.Y.	79650	$995,625
-Compaction	$4.00	C.Y.	5760	$23,040
CHANNEL LINING				
-Invert Slabs	$95.00	C.Y.	15995	$1,519,525
-Trapezoidal Sides	$150.00	C.Y.	2190	$328,500
-Vertical Walls	$210.00	C.Y.	10940	$2,297,400
STRUCTURAL				
-Steel Reinforcement	$0.50	LBS	2514900	$1,257,450
FENCING				
-Temporary	$4.00	L.F.	23500	$94,000
-6ft Chain Link	$8.00	L.F.	17700	$141,600
RELOCATION				
-U.P.R.R.	$255,000.00	L.S.	------	$255,000
-Utilities	$28,700.00	L.S.	------	$28,700
MISCELLANEOUS				
-Crushed Stone (Roads)	$8.50	TON	3590	$30,515
-Water (Compaction)	$5.00	MGAL	3500	$17,500
-6in Dia Drainage Pipe	$8.50	L.F.	18300	$155,550
-36in Dia CMP	$125.00	L.F.	640	$80,000
-Inverted Siphon	$7,500.00	EA.	4	$30,000
-Side Drains	$31,000.00	L.S.	------	$31,000
REVEGETATION	$11,600.00	L.S.	------	$11,600
-SUBTOTAL-				$8,278,940
MOBILIZATION (5%)				$413,947
CONSTRUCTION CONTINGENCES (10%)				$827,894
-TOTAL CONSTRUCTION COSTS (US CORP ENG)-				$9,520,781
ENGINEERING, ADMINISTRATION, & INSPECTION (20%)				$1,879,819
RIGHT OF WAY	$79,400	L.S.	------	$79,400
-TOTAL COSTS (NON-FEDERAL)-				($160,200)

BASELINE DATE (10/83) INDEX= 5139.69 PROJECT COST = $11,480,000

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $11,440,555

NR CONSTRUCTION COST INDEX (SAN FRANCISCO)

CALERA CREEK (4018)

Watercourse Inventory

Watershed Description

The Calera Creek watershed comprises approximately 3 square miles. The headwaters begin just south of Monument Peak at an elevation of 2,400 feet near the northern boundary of Santa Clara County, and continue approximately 3.15 miles to its confluence with Berryessa Creek. Calera Creek is located within the City of Milpitas and unincorporated areas of Santa Clara County. Channel characteristics on Calera Creek are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

The only high quality riparian habitat identified on Calera Creek is a 500-foot section of natural channel downstream of Interstate 680. Calera Creek is not used as a recharge facility and includes no developed recreation facilities. A description and a summary of environmental conditions and multipurpose uses are given in Tables A3 and A4 respectively.

Erosion and Sediment

There are no reaches with observed erosion greater than one foot on Calera Creek. Tractive force analysis indicates that there are potentially erosive velocities along Russell Junior High and upstream of Park Victoria. A summary of observed and potential erosion is given in Table A5.

Flood Damage Potential

One Percent Flooding

For the 1% event, the channel flow rate just upstream of the Park Victoria and Interstate 680 box culverts is 895 cfs. At the Park Victoria and Interstate 680 culverts there would be overbanking from the channel of 495 cfs due to inadequate culvert capacity. The floodwaters will run south along the east side of the freeway embankment and continue under Interstate 680 down Jacklin Road. Eventually the floodwaters will pond behind the levees on Berryessa Creek at a depth of less than one foot. The floodplain consists primarily of residential areas.

Downstream of Interstate 680, a peak flow rate of 400 cfs will remain contained in the creek. The flow rate will increase to 465 cfs at North Milpitas Boulevard due to local inflow along the reach.

A summary of channel capacities is given in Table A6.

Flooding Damages

The 1% flood event would flood over 400 homes downstream of Interstate 680, with damages estimated to be $186,000. Average annual damages are approximated at $6,000. A breakdown of average annual damage by reach and potential 1% flood damage is given in Tables A6 and A7 respectively. Note that Table A7 includes floodwaters of less than one foot.

Remedial Measures

Flood Control Elements

Three culverts and 2,000 feet of natural channel will require modification to provide 1% flood protection on Calera Creek downstream of Park Victoria Drive. A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

1. Escuella Parkway - The 12 x 4 RCB culvert at Escuella Parkway was originally designed to convey 700 cfs; assuming a closed conduit upstream. With the existing modified floodplain upstream, less head can be developed and the actual capacity is 350 cfs. An additional 12 x 4 RCB would be added to the existing 12 x 4 RCB to pass the 1% design flow of 890 cfs. Floodwalls would be constructed upstream of the culvert to develop head, as culvert depth is constrained by the Hetch-Hetchy Aqueduct.

2. Existing Modified Floodplain (Station 53+00) to Interstate 680 - This 1,000-foot reach of Calera Creek is a natural unmodified channel with limited capacity (± 500 cfs) and some severe erosion. The 1974 East Zone Report called for an 8 x 7-foot RCB in this reach. Because the 1% design flow has increased, a 10 x 7-foot RCB is now required. Because approximately 500 feet of this reach is considered to have high quality riparian habitat, an alternative design would be to construct within the existing right of way a modified floodplain similar to the reach immediately downstream.

3. Interstate 680 to Park Victoria Drive - The 10x8 RCB culverts at Interstate 680 and Park Victoria Drive were designed to convey 700 cfs as part of a closed system. Because the upstream channels are open, the actual culvert capacities are less than 500 cfs. To convey the 1% design flow of 890 cfs, the 50 foot opening between these culverts would be closed.

4. Park Victoria Drive to 1,000 Feet Upstream - This was the uppermost reach included in the 1974 East Zone Report which recommended an 84-inch RCP in this section. Because the 1% design flow has increased, a 96-inch RCP is now required. A park has been created along the south side of this reach and a residential development is proceeding along the northerly bank. The District has acquired right of way along this reach. Improvements will require funding by the City of Milpitas or this District.

Cost Estimates

The total cost of the flood control elements is estimated at $1.1 million. Annual operation and maintenance costs are estimated at $2,500. Table A9 gives a summary of the construction costs for flood control elements proposed on Calera Creek.

Funding

A breakdown by reach of potential funding sources is given in Table A10.

EAST ZONE REPORT (CALERA CREEK) TABLE-A1 12/12/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
CALERA CREEK	CONFL.W/BERRYESSA CR	0.00	22.0	2.0	410.	0.030	EXCAVATED EARTH	0/ 0
CALERA CREEK	D/S SPRR RCB	1.50	22.0	6.0	410.	0.015	BOX CULVERT	0/ 0
CALERA CREEK	U/S W.P.R.R. RCB	3.22	20.0	0.0	410.	0.015	U-FRAME CONCRETE	0/ 0
CALERA CREEK	D/S N MILPITAS BLVD RCB	7.00	20.0	7.0	465.	0.015	BOX CULVERT	0/ 0
CALERA CREEK	U/S N MILPITAS BLVD RCB	8.50	10.0	2.0	465.	0.030	EXCAVATED EARTH	0/ 0
CALERA CREEK	D/S ARIZONA DRIVE RCB	21.68	16.0	8.0	465.	0.015	BOX CULVERT	0/ 0
CALERA CREEK	U/S ARIZONA DRIVE RCB	22.32	10.0	2.0	465.	0.030	EXCAVATED EARTH	0/ 0
CALERA CREEK	MILPITAS HIGH SCHOOL	30.75	75.0	3.5	465.	0.030	MODIFIED FLOOD PLAIN	0/ 0
CALERA CREEK	D/S ESQUELA PARKWAY RCB	39.50	12.0	4.0	465.	0.015	BOX CULVERT	0/ 0
CALERA CREEK	U/S ESQUELA PARKWAY RCB	42.00	10.0	2.0	465.	0.040	MODIFIED FLOOD PLAIN	0/ 0
CALERA CREEK	U/S EARTHEN DROP	52.75	3.0	1.5	465.	0.040	NATURAL - UNMODIFIED	0/ 0
CALERA CREEK	D/S FWY 680 RCB	63.00	10.0	8.0	895.	0.015	BOX CULVERT	0/ 0
CALERA CREEK	U/S FWY 680 RCB	66.50	10.0	2.0	890.	0.030	SACKED CONCRETE RIPRAP	0/ 0
CALERA CREEK	D/S PARK VICTORIA RCB	67.00	10.0	8.0	890.	0.015	BOX CULVERT	0/ 0
CALERA CREEK	U/S PARK VICTORIA RCB	67.40	10.0	2.0	890.	0.030	SACKED CONCRETE RIPRAP	0/ 0
CALERA CREEK	U/S PARK VICTORIA DR	67.90	3.0	0.8	890.	0.045	NATURAL - UNMODIFIED	0/ 0
CALERA CREEK	LIMIT OF JURISDICTION	165.50	LIMIT OF JURISDICTION					

```
                                 SUMMARY OF CHANNEL TYPES


                THERE ARE      0.19  MILES OF    BOX CULVERT

                THERE ARE      0.07  MILES OF    U-FRAME CONCRETE

                THERE ARE      0.02  MILES OF    SACKED CONCRETE RIPRAP

                THERE ARE      0.44  MILES OF    EXCAVATED  EARTH

                THERE ARE      0.37  MILES OF    MODIFIED FLOOD PLAIN

                THERE ARE      2.04  MILES OF    NATURAL - UNMODIFIED


                TOTAL          3.13  MILES
```

CHANNEL ENVIRONMENTAL CONDITIONS

			HABITAT TYPE								MULTIPURPOSES	
CREEK	LOCATION	STATION	NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOOD-LAND	RIPAR-IAN	VEGETA-TIVE QUANTITY	HABITAT QUALITY	GW RECHG	RECRE-ATION
CALERA CREEK	CONFL/BERRYESSA CR	0.00			X				SPARSE	LOW		
DOMINANT SPECIES: WEEDS, WINTER ANNUAL GRASSES												
CALERA CREEK	D/S S.P. RAILROAD	1.50			X				NONE	VERY LOW		
CALERA CREEK	U/S W.P. RAILROAD	2.50			X	X			SPARSE	VERY LOW		
DOMINANT SPECIES: WATER CRESS, BARNYARD GRASS,												
CALERA CREEK	D/S N MILPITAS BLV	7.00			X	X			NONE	VERY LOW		
CALERA CREEK	U/S N MILPITAS BLV	8.50				X			SPARSE	VERY LOW		
DOMINANT SPECIES: WINTER ANNUAL GRASSES, WATER CRESS												
CALERA CREEK	D/S ARIZONA DRIVE	21.60				X			SPARSE	VERY LOW		
DOMINANT SPECIES: WATER CRESS, WINTER ANNUAL GRASSES, WEEDS												
CALERA CREEK	D/S TYPE III DROP	30.00				X			SPARSE	LOW		
DOMINANT SPECIES: GRASSES												
CALERA CREEK	D/S ESCUELA PARKWA	39.50				X			MODERATE	MODERATE		
DOMINANT SPECIES: GRASSES, WEEDS												
CALERA CREEK	D/S EARTHEN DROP	52.00				X			MODERATE	GOOD		
DOMINANT SPECIES: ELDERBERRY, BLACKBERRY, COTTONWOOD, ALMOND												
CALERA CREEK	HILLVIEW DR	57.50						X	ABUNDANT	HIGH		
DOMINANT SPECIES: COTTONWOOD, CALIFORNIA BUCKEYE, WILLOW, POISON OAK, BLACKBERRY												
CALERA CREEK	D/S FWY 680	63.00	X						NONE	VERY LOW		
CALERA CREEK	U/S PARK VICTORIA	67.40				X			SPARSE	LOW		
DOMINANT SPECIES: CURLY DOCK, WEEDS, GRASSES, WATER CRESS												
CALERA CREEK	U/S PARK VICTORIA	69.00				X			SPARSE	LOW		
DOMINANT SPECIES: GRASSES, WATER CRESS												
CALERA CREEK	IMIT OF JURISDICTI	165.50	LIMITS OF JURISDICTION									

```
                    EAST ZONE REPORT (CALERA CREEK) TABLE A4                         12/12/84


                      SUMMARY OF CHANNEL ENVIRONMENTAL CONDITIONS


                 THIS SUMMARY INCLUDES A TOTAL OF      3.13  MILES  OF CHANNEL.

                 HABITAT TYPES:

                      THERE ARE     0.08  MILES OF NO SIGNIFICANT HABITAT

                      THERE ARE     0.16  MILES OF SALT/BRACKISH MARSH

                      THERE ARE     2.90  MILES OF GRASSLAND HABITAT

                      THERE ARE     0.10  MILES OF RIPARIAN HABITAT

                 QUANTITY OF VEGETATION:

                      THERE ARE     0.13  MILES WITH NO VEGETATION

                      THERE ARE     2.56  MILES WITH SPARSE VEGETATION

                      THERE ARE     0.34  MILES WITH MODERATE VEGETATION

                      THERE ARE     0.10  MILES WITH ABUNDANT VEGETATION

                 QUALITY OF HABITAT:

                      THERE ARE     0.62  MILES WITH VERY LOW QUALITY HABITAT

                      THERE ARE     2.07  MILES WITH LOW QUALITY HABITAT

                      THERE ARE     0.24  MILES WITH MODERATE QUALITY HABITAT

                      THERE ARE     0.10  MILES WITH GOOD QUALITY HABITAT

                      THERE ARE     0.10  MILES WITH HIGH QUALITY HABITAT
```

EAST ZONE REPORT (CALERA CREEK) TABLE-A5 12/12/84

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
CALERA CREEK CONFL.W/BERRYESSA CR	0.00	3.1	2.0	4.6	1.0	0.007	0.086	1.0	1.0
CALERA CREEK D/S SPRR RCB	1.50				NON-ERODING REACH				
CALERA CREEK U/S W.P.R.R. RCB	3.22				NON-ERODING REACH				
CALERA CREEK D/S N MILPITAS BLVD RCB	7.00				NON-ERODING REACH				
CALERA CREEK U/S N MILPITAS BLVD RCB	8.50	3.1	2.2	4.8	1.0	0.010	0.094	1.0	1.0
CALERA CREEK D/S ARIZONA DRIVE RCB	21.68				NON-ERODING REACH				
CALERA CREEK U/S ARIZONA DRIVE RCB	22.32	1.0	2.5	6.5	1.0	0.011	0.128	1.0	1.0
CALERA CREEK MILPITAS HIGH SCHOOL	30.75	1.0	1.3	5.9	1.0	0.002	0.117	1.0	1.0
CALERA CREEK D/S ESQUELA PARKWAY RCB	39.50				NON-ERODING REACH				
CALERA CREEK U/S ESQUELA PARKWAY RCB	42.00	1.0	5.8	5.9	1.0	0.064	0.119	1.0	1.0
CALERA CREEK U/S EARTHEN DROP	52.75	1.0	6.9	6.2	2.0	0.088	0.150	1.0	2.0
CALERA CREEK D/S FWY 680 RCB	63.00				NON-ERODING REACH				
CALERA CREEK U/S FWY 680 RCB	66.50				NON-ERODING REACH				
CALERA CREEK D/S PARK VICTORIA RCB	67.00				NON-ERODING REACH				
CALERA CREEK U/S PARK VICTORIA RCB	67.40				NON-ERODING REACH				
CALERA CREEK U/S PARK VICTORIA DR	67.90	1.0	20.0	5.8	2.0	0.905	0.150	2.0	2.0

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	 ALLOW FT/SEC	 CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	 ALLOW LB/SF	 CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
CALERA CREEK									
LIMIT OF JURISDICTION	165.50	LIMIT OF DISTRICT			JURISDICTION				

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS		EXIST CONDITIONS			FREQ OF FLOOD (YEAR)	FLOOD DAMAGES	
				1% CFS	10% CFS	Q1% CFS	CAPCTY CFS	N		1% (IN 1000$)	AVG ANN
CALERA CREEK CONFL/BERRYESSA CRK	0,00	2,93	0.0	920.	430.	410.	1500.	.030	1000.	0.0	0.0
CALERA CREEK D/S S.P. RAILROAD RCB	1,50	2,93	0.0	920.	430.	410.	1915.	.015	1000.	0.0	0.0
CALERA CREEK U/S W.P. RAILROAD RCB	3,22	2,93	0.0	920.	430.	410.	1884.	.015	1000.	0.0	0.0
CALERA CREEK D/S N MILPITAS BLVD RCB	7,00	2,93	0.0	920.	430.	465.	900.	.015	100.	0.0	0.0
CALERA CREEK U/S N MILPITAS BLVD RCB	8,50	2,93	0.0	920.	430.	465.	1810.	.030	1000.	0.0	0.0
CALERA CREEK D/S ARIZONA DRIVE RCB	21,68	2,93	0.0	920.	430.	465.	958.	.015	119.	0.0	0.0
CALERA CREEK U/S ARIZONA DRIVE RCB	22,32	2,93	0.0	920.	430.	465.	1162.	.030	297.	0.0	0.0
CALERA CREEK U/S TYPE III DROP	30,75	2,93	0.0	920.	430.	465.	4600.	.030	1000.	0.0	0.0
CALERA CREEK D/S ESQUELA PARKWAY RCB	39,50	2,93	0.0	920.	430.	465.	390.	.015	9.	0.0	0.0
CALERA CREEK U/S ESQUELA PARKWAY RCB	42,00	2,93	0.0	920.	430.	465.	4600.	.040	1000.	0.0	0.0
CALERA CREEK U/S EARTHEN DROP	52,75	2,93	0.0	920.	430.	465.	580.	.040	100.	0.0	0.0
CALERA CREEK D/S FWY 680 RCB	63,00	2,43	0.0	890.	410.	895.	820.	.015	67.	151,9	1,9
CALERA CREEK U/S FWY 680 RCB	66,50	2,43	0.0	890.	410.	890.	820.	.030	67.	21,7	0,3
CALERA CREEK D/S PARK VICTORIA RCB	67,00	2,43	0.0	890.	410.	890.	713.	.015	42.	17,4	0,3
CALERA CREEK U/S PARK VICTORIA RCB	67,40	2,43	0.0	890.	410.	890.	895.	.030	102.	0.0	0.0
CALERA CREEK U/S PARK VICTORIA DR	67,90	2,43	0.0	890.	410.	890.	895.	.045	102.	0.0	0.0

```
                                   EAST ZONE REPORT (CALERA CREEK) TABLE=A6                                  1/15/85

      CREEK                               DRAIN    MEAN     DESIGN FLOWS   EXIST CONDITIONS     FREQ OF     FLOOD DAMAGES
        LOCATION                 STATION  AREA     ANNUAL    1%     10%     Q1%  CAPCTY   N      FLOOD       1%   AVG ANN
                                          SQ MI    PRECIP    CFS    CFS     CFS   CFS           (YEAR)      (IN 1000$)

  CALERA CREEK
     D/S CONFL. S BRANCH          142,00   2,43      0.0     440.   210.    440.  440. .045      100.         0.0     0.0

  CALERA CREEK
     U/S CONFL. S BRANCH          142,05   2,43      0.0     220.   100.    220.  220. .045      100.         0.0     0.0

  CALERA CREEK
    LIMITS OF JURISDICTION        165,50   0,50     LIMIT OF JURISDICTION

   TOTAL AVERAGE ANNUAL DAMAGES ($1000) =        2.
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                    EAST ZONE REPORT (CALERA CREEK) TABLE-A7                                        12/12/84


                              S U M M A R Y


                    DAMAGES-INSURANCE-FLOODPROOFING-ACQUISITION

       REALESTATE INDEX= 118.0

                                  AREA      NUMBER     1%FLOOD     ANNUAL       FLOOD       FLOODPLAIN
       LAND USE                 FLOODED       OF       DAMAGES    INSURANCE    PROOFING    ACQUISITION
                                 ACRES       BLDGS     (1000$)   (1000$/YR)   (1000$)      (1000$)



         SF RESIDENT               90.        414.       170.        177.4       4140.        56159.
         APT RESID                  0.          0.         0.          0.0          0.            0.
         MOBILE HOME                0.          0.         0.          0.0          0.            0.
         COMMERCIAL                 0.          0.         0.          0.0          0.            0.
         INDUSTRIAL                 1.          1.        21.          3.1         59.          522.
         SCHLS,PUBLC                0.          0.         0.          0.0          0.            0.
         OPEN IMPRVD                1.          0.         0.          0.0          0.          165.
         AGRICULTURE                1.          0.         0.          0.0          0.          165.
         VACLND/S.PND              71.          0.         0.          0.0          0.        11066.


         TOTAL                    164.        415.       191.        180.5       4199.        68076.
```

S U M M A R Y

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGULATION	DISCOURAGEMENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCTURE	ENLARGE CULVERT
0.00	XXX	XXX										
1.50	XXX	XXX										
2.50	XXX	XXX										
3.22	XXX	XXX										
7.00	XXX	XXX	XXX	XXX	XXX							XXX
8.50	XXX	XXX										
21.60	XXX	XXX										
21.68	XXX	XXX										
22.32	XXX	XXX										
30.00	XXX	XXX										
30.75	XXX	XXX										
39.50	XXX	XXX	XXX	XXX	XXX							XXX
42.00	XXX	XXX										
52.00	XXX	XXX										
52.75	XXX	XXX	XXX	XXX	XXX							
57.50	XXX	XXX	XXX	XXX	XXX							
63.00	XXX	XXX	XXX	XXX	XXX	XXX						XXX
66.50	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
67.00	XXX	XXX	XXX	XXX	XXX	XXX						XXX
67.40	XXX	XXX										
67.90	XXX	XXX										
69.00	XXX	XXX										
142.00	XXX	XXX										
142.05	XXX	XXX										

```
                                                       EAST ZONE REPORT (CALERA CREEK) TABLE=A8                                 12/12/84

                                                                  S U M M A R Y

                                                 FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

         STATION     CONST    WATERSHED   CONST    INSTALL   EMERGENCY  INSUR     **DOWNSTREAM CONFLICTS***    **CAPACITY < **
                     BYPASS   TREATMENT   DAM/     SEDIMENT  PROCEDURE  REGUL     INDUCE  RECHARGE   ENVIRON    DESIGN    EXIST
                                         RESERV    BASIN     /WARNING   MANAG     FLOOD   /EROSION   QUALITY     Q1%      Q1%

            0,00
            1,50
            2,50
            3,22
            7,00                                                         XXX                                    XXX
            8,50
           21,60
           21,68
           22,32
           30,00
           30,75
           39,50                                                         XXX       XXX                          XXX       XXX
           42,00
           52,00                                                                                       XXX
           52,75                 XXX                 XXX                 XXX                           XXX      XXX
           57,50                 XXX                 XXX                 XXX                           XXX      XXX
           63,00                                               XXX       XXX       XXX                          XXX       XXX
           66,50                                               XXX       XXX       XXX                          XXX       XXX
           67,00                                               XXX       XXX       XXX                          XXX       XXX
           67,40
           67,90
           69,00
          142,00
          142,05

            ELEMENTS (I,E, PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF CALERA CREEK
                          BETWEEN   165,50 AND   142,05

                     REGULATION TO PREVENT OCCURANCE OF PROBLEM
                     DISCOURAGEMENT OF INAPPROPRIATE LAND USES
```

EAST ZONE REPORT (CALERA CREEK) TABLE-A9 12/13/84

-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	1.5	$3,000
EARTHWORK -Excavate	$2.00	C.Y.	6815	$13,630
CHANNEL LINING -96 inch RCP	$198.00	L.F.	1000	$198,000
STRUCTURAL -Culvert (RCB)	$350.00	C.Y.	1195	$418,250
REVEGETATION	$5,000.00	L.S.	-----	$5,000
-SUBTOTAL-				$637,880
MOBILIZATION (5%)				$31,894
CONSTRUCTION CONTINGENCES (10%)				$63,788
-TOTAL CONSTRUCTION COSTS-				$733,562
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$132,041
RIGHT OF WAY	$50,000	ACRE	0	$0
BASELINE DATE (11/84) INDEX= 5122.03			PROJECT COST =	$865,603

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

RUBY CREEK (4019)

Watercourse Inventory

Watershed Description

The Ruby Creek watershed comprises approximately 1.6 square miles. The watercourse extends approximately 1.6 miles from the confluence with Flint Creek to the limit of District jurisdiction. Ruby Creek is located within the City of San Jose. Except for the lower 1,200 feet, Ruby Creek is contained underground in reinforced concrete pipe. A sediment basin is located along Klein Road, immediately above which is the limit of District jurisdiction. Channel characteristics on Ruby Creek are listed and summarized in Tables A1 and A2 respectively.

Enviroment and Multipurpose Use

There is no significant habitat on Ruby Creek. Ruby Creek is not used as a recharge facility and includes no developed recreation facilities. Table A3 and Table A4 are not included in Appendix A.

Erosion and Sediment

There are no reaches with observed erosion - greater than one foot on Ruby Creek. A summary of observed and potential erosion is given in Table A5.

Flood Damage Potential

Ruby Creek has adequate capacity to pass the 1% flood flow from its own watershed. The 1% flowrate at the confluence with Flint Creek would be 260 cfs. A summary of channel capacities is given in Table A6. Tables A7, A8, and A9 are not included in Appendix A.

Funding

The recently constructed flood control measures on Ruby Creek were funded by private developers.

EAST ZONE REPORT (RUBY CREEK) TABLE-A1 12/12/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
RUBY CREEK	CONFL.W/ FLINT CR	0.00	8.0	2.0	260.	0.030	EXCAVATED EARTH	0/ 0
RUBY CREEK	D/S L.CUNNINGHAM RCB	10.00	8.0	8.0	260.	0.013	BOX CULVERT	0/ 0
RUBY CREEK	U/S L.CUNNINGHAM RCB	10.60	8.0	1.5	260.	0.030	EXCAVATED EARTH	0/ 0
RUBY CREEK	D/S TULLY RD (84"RCP)	12.00	7.0	0.0	260.	0.013	PIPE	0/ 0
RUBY CREEK	D/S ALMOND DR (72"RCP)	31.00	6.0	0.0	260.	0.013	PIPE	0/ 0
RUBY CREEK	D/S VISTA VERDE(66"RCP)	47.00	5.5	0.0	260.	0.013	PIPE	0/ 0
RUBY CREEK	D/S NUBE CT. (60"RCP)	49.90	5.0	0.0	260.	0.013	PIPE	0/ 0
RUBY CREEK	D/S FLINT AVE (54"RCP)	55.70	4.5	0.0	260.	0.013	PIPE	0/ 0
RUBY CREEK	D/S TIMBERLAKE (60"RCP)	71.24	5.0	0.0	190.	0.013	PIPE	0/ 0
RUBY CREEK	LIMIT OF JURISDICTION	84.85	LIMIT OF JURISDICTION					

```
                          EAST ZONE REPORT (RUBY CREEK) TABLE=A2                                    12/12/84

                                      SUMMARY OF CHANNEL TYPES


                         THERE ARE     1.38  MILES OF   PIPE

                         THERE ARE     0.01  MILES OF   BOX CULVERT

                         THERE ARE     0.22  MILES OF   EXCAVATED  EARTH


                         TOTAL         1.61  MILES
```

EAST ZONE REPORT (RUBY CREEK) TABLE-A5 12/12/84

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
RUBY CREEK CONFL.W/ FLINT CR	0.00	3.1	2.6	4.5	1.0	0.013	0.091	1.0	1.0
RUBY CREEK D/S L.CUNNINGHAM RCB	10.00				NON-ERODING REACH				
RUBY CREEK U/S L.CUNNINGHAM RCB	10.60	3.1	2.1	4.7	1.0	0.008	0.097	1.0	1.0
RUBY CREEK D/S TULLY RD (84"RCP)	12.00				NON-ERODING REACH				
RUBY CREEK D/S ALMOND DR (72"RCP)	31.00				NON-ERODING REACH				
RUBY CREEK D/S VISTA VERDE(66"RCP)	47.00				NON-ERODING REACH				
RUBY CREEK D/S NUBE CT. (60"RCP)	49.90				NON-ERODING REACH				
RUBY CREEK D/S FLINT AVE (54"RCP)	55.70				NON-ERODING REACH				
RUBY CREEK D/S TIMBERLAKE (60"RCP)	71.24				NON-ERODING REACH				
RUBY CREEK LIMIT OF JURISDICTION	84.85	LIMIT OF DISTRICT			JURISDICTION				

EAST ZONE REPORT (RUBY CREEK) TABLE=A6 1/15/85

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS 1% CFS	DESIGN FLOWS 10% CFS	EXIST CONDITIONS Q1% CFS	EXIST CONDITIONS CAPCTY CFS	N	FREQ OF FLOOD (YEAR)	FLOOD DAMAGES 1% (IN 1000$)	FLOOD DAMAGES AVG ANN (IN 1000$)
RUBY CREEK U/S CONFL WITH FLINT CR	0.00	1.55	0.0	260.	180.	260.	275.	.030	184.	0.0	0.0
RUBY CREEK D/S L.CUNNGHAM ENTR.RBC	10.00	1.55	0.0	260.	180.	260.	355.	.013	1000.	0.0	0.0
RUBY CREEK U/S L.CUNNGHAM ENTR.RBC	10.60	1.55	0.0	260.	180.	260.	355.	.030	1000.	0.0	0.0
RUBY CREEK D/S TULLY RD(BEG 7'RCP)	12.00	1.55	0.0	260.	180.	260.	260.	.013	100.	0.0	0.0
RUBY CREEK BEG 72" RCP @ ALMOND DR	31.00	1.55	0.0	260.	180.	260.	400.	.013	1000.	0.0	0.0
RUBY CREEK BEG 66"RCP @VISTA VERDE	47.00	1.55	0.0	260.	180.	260.	360.	.013	1000.	0.0	0.0
RUBY CREEK BEG 60"RCP @ NUBE ST	49.90	1.55	0.0	260.	180.	260.	370.	.013	1000.	0.0	0.0
RUBY CREEK BEG 54"RCP @ FLINT AVE	55.70	1.55	0.0	260.	180.	260.	380.	.013	1000.	0.0	0.0
RUBY CREEK BEG 60"RCP @ TIMBERLAKE	71.24	1.55	0.0	190.	90.	190.	190.	.013	100.	0.0	0.0
RUBY CREEK LIMITS OF JURISDICTION	86.00	0.50	LIMIT OF JURISDICTION								

TOTAL AVERAGE ANNUAL DAMAGES ($1000) = 0.

COYOTE CREEK (4021)

Watercourse Inventory

Watershed Description

The total Coyote Creek watershed comprises approximately 350 square miles. This is the largest watershed in Santa Clara County. All East Zone creeks are tributary to Coyote Creek. Coyote Creek is approximately 75 miles long and is located within the cities of San Jose, Morgan Hill and Milpitas, and unincorporated areas of Santa Clara County.

The stream flow in Coyote Creek is regulated by Coyote and Anderson Reservoirs which have a combined storage capacity of about 115,000 acre-feet. These reservoirs were constructed and are operated primarily for water conservation. However, they do provide some incidential flood control benefits.

Channel characteristics on Coyote Creek are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

Approximately 37 of the 42 miles of Coyote Creek below Anderson Reservoir are in a natural state. Coyote Creek is used extensively for recreation and for groundwater recharge. The habitat quality along the majority of this creek is considered high. A description and a summary of environmental conditions and mulitpurpose uses are given in Tables A3 and A4 respectively.

Erosion and Sediment

Moderate erosion (greater than one foot) has been observed along Coyote Creek between Upper Penitencia Creek and Lower Silver Creek, and above Tully Road for about 2,500 feet during the storms of 1983. A summary of observed and potential erosion is given in Table A5.

Flood Damage Potenital

One Percent Flooding

The channel is inadequate from Metcalf Road upstream to Anderson Reservoir, yet overbanking is generally confined to areas adjacent to the channel. The floodplain is essentially all agricultural land, exceptions being part of the James Boys Ranch and several farm residences. Opposite Miramonte Avenue (Station 2010+00) spill from the east bank travels north and then west, eventually draining back into Coyote Creek opposite Palm Avenue (2,220 cfs attenuating to 1,810 cfs). The floodplain includes mostly agricultural and unimproved land, and a few ponds. A spill also occurs on the west side in the same reach (3,040 cfs). This spill flows along the east side of Highway 101, mingling with some local drainage (880 cfs) and eventually returning to the channel opposite Scheller Avenue (3070 cfs). The floodplain is all agricultural land.

Between Metcalf and Tennant Roads, the expected channel flowrate is 14,850 cfs. There is flooding along both sides of the channel but it is fairly well confined and affects only agricultural land and land reserved for water resources. Then, because of a constriction at the Fontanosa Bridge a large spill occurs on the west bank. This spill flows north to the intersection of Highways 82 and 101, and then sheetflows along the northeast side of Highway 82 to Capitol Expressway. It crosses Capitol Expressway and spreads out, flowing north toward Interstate 280 between Highway 82 and Coyote Creek, eventually draining back into the channel. The area affected by this shallow flooding (less than 1 foot) is quite extensive and includes every kind of land use: single and multi-family residences; six mobile home parks; manufacturing, industrial and commercial property; four schools, the San Jose State University Stadium and athletic field; the County fairgrounds, public parks and stadiums; and a fire station.

Due to the inadequate bridge at East William Street, the flow of 12,630 cfs is not contained in the reach upstream of East William Street to Interstate 280. A large spill occurs on the east side (1,230 cfs). This spill flows north, mingling with overflow from

Lower Silver Creek and returns to the channel near the confluence of Lower Silver with Coyote Creek. Flooding depths in the area are very deep in places, well over three feet deep near the creek upstream of East William Street, and near the railroad tracks. Most all of the flood depths are greater than one foot. The floodplain is well developed, containing residential areas, industrial areas and three public schools.

A constriction at Mabury Road causes flooding between Mabury Road and Lower Silver Creek confluence. Most of this floodplain is open undeveloped land.

Near Berryessa Road inadequate channel results in flooding of the industrial area. The levee around the mobile home park on Old Oakland Road has an opening at the railroad tracks allowing flood waters to enter. The depth of flooding in the mobile home park is well over three feet as it ponds against the east embankment of Old Oakland Road. The Old Oakland Road bridge is adequate.

The existing 1% flow downstream of Highway 17 is 12,230 cfs. The channel downstream of Trimble Road is inadequate causing a backwater upstream of the bridge, forcing a large spill on the west side (3,630 cfs). This spill heads northwest across Trimble Road towards the San Jose-Alviso Road. Flooding is about one foot deep with ponding in spots up to three feet. The area affected contains a large industrial park and agricultural land. Eventually, the spill mingles with floodwaters from the Guadalupe River and sheetflows toward Alviso.

The expected channel flowrate downstream of Trimble Road is 8,600 cfs. Another large spill occurs in the low spot on the west levee just north of Agnews State Hospital - East Area (3,200 cfs). The bridge at Route 237 is adequate. The spill sheetflows west, mingling with the Coyote spill from upstream of Trimble Road. The combined spill flow, along with spill flow from the Guadalupe River, travels north toward the Bay, across Route 237.

Between Dixon Landing Road and Route 237 there is overbanking in at least three locations due to inadequate levees. About half a mile downstream of Route 237 (approximately Station 578+00) large spills occur on both the east and west sides. The east side spill (2,250 cfs) flows northeast flooding the agricultural land between the creek and Highway 17 with ponding depths about two to three feet deep near the highway embankment. Floodwaters can cross the highway under extreme events. The west side spill (1,500 cfs) flows northwest, mingling with other Coyote spill flow that is traveling toward the tidelands. These waters all eventually head into Alviso.

A summary of channel capacities is given in Table A6.

Flood Damages

Damages which would result from a 1% flood on Coyote Creek are estimated to be $79 million. Average annual damages are approximated at $2.7 million.

1% flood damages of up to $52 million could occur because of the inadequate channel capacity and unstable levees on Coyote Creek downstream of Montague Road. In 1982 and 1983 damages of $2.5 and $6 million respectively were incurred from floodwaters eminating from this reach.

A breakdown of average annual damage by reach and potential 1% flood damage is given in Tables A6 and A7 respectively. Note that Table A7 includes floodwaters of less than on foot.

Remedial Meaures

Flood Control Elements

In order to provide 1% flood protection from Coyote Creek, improvements would be necessary along most of the 42 miles from the Bay to Anderson Reservoir. Ninety-seven percent of the damage potential is from flooding downstream of Metcalf Road. This discussion will focus on remedial measures downstream of Metcalf Avenue. A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

1. Inboard Levee to Montague Expressway - This reach is the subject of a 1984 Engineers Report. The proposed project includes a bypass channel downstream of the Milpitas Pumping Station (Station 490 + 00) and excavated overflow channels adjacent to the natural channel. Cost is estimated to be $26 million.

2. Montague Expressway to Bayshore Freeway - The Coyote Creek report prepared by George S. Nolte & Associates in March 1978 for the Corps of Engineer's Study proposed as the least costly alternative an excavated channel in this reach. The channel modifications will include excavation on the east bank and levee placement where needed. A three-foot floodwall will be required for 500 feet adjacent to commerical buildings. The bank adjacent to the golf course will be excavated. The section of channel between Montague Expressway and Highway 17 was excavated to 1% flow capacity in 1972. Cost is estimated to be $5.3 million.

3. Bayshore Freeway to Interstate 280 - The Coyote Creek report, prepared by George S. Nolte & Associates in March 1978 for the Corps of Engineer's Study, proposed as the least cost alternative an excavated channel in this reach. A major portion of this reach will be allowed to remain natural. No bridges need to be replaced. Seven homes will be purchased. Cost is estimated to be $4.77 million.

4. Interstate 280 to U. S. 101 - The Coyote Creek report, prepared by George S. Nolte & Associates in March 1978 for the Corps of Engineer's Study, proposed minimal channel modification as the least costly alternative. Several flood easements will be purchased to allow the area to remain natural. The Tully Road bridge is inadequate and will be replaced. Some slope protection will be required. A levee and floodwall will be necessary near an apartment complex. Cost is estimated to be $3.52 million.

5. U. S. 101 to Metcalf Road - The Coyote Creek report, prepared by George S. Nolte & Associates in March 1978 for the Corps of Engineer's Study, proposed minimal channel modification in this reach as the least costly alternative. The

work proposed included reconstruction or addition of low levees in short sections of the reach. A two-lane bridge would be constructed at the Tennant Road crossing and the Fontanoso Avenue bridge would be replaced. Cost is estimated to be $2.96 million.

Cost Estimates

The total cost of the flood control elements is estimated at $42.5 million. Annual operation and maintenance costs are estimated at $210,000. Table A9 gives a summary of the construction costs for the remedial flood control elements proposed on Coyote Creek.

Funding

The proposed flood control measures would be financed through two sources of revenue: 1) ad valorem tax, and 2) benefit assessment. If the current Corps of Engineers study determines there is a federal interest, part of the construction costs may be federally funded. A breakdown by reach of all possible funding sources is given in Table A10.

EAST ZONE REPORT (COYOTE CREEK) TABLE-A1 12/12/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
COYOTE CREEK	CONFL.W/ S.F. BAY	0.00	25.0	1.0	5000.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	CONFL.W/ L. PENITENCIA	446.50	25.0	1.0	5000.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S L. PENITENCIA CR	447.00	25.0	1.0	5000.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	SEWAGE TREATMENT PLANT	491.00	50.0	1.0	5000.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S MCCARTHY LN	550.00	55.0	1.0	5000.	0.045	EARTHLEVEES	0/ 0
COYOTE CREEK	D/S HWY 237	595.00	45.0	1.0	5000.	0.036	EARTHLEVEES	0/ 0
COYOTE CREEK	AGNEWS ST. HOSP	665.00	35.0	1.5	8600.	0.045	EARTHLEVEES	0/ 0
COYOTE CREEK	U/S TRIMBLE ROAD	735.00	95.0	2.0	8600.	0.035	EXCAVATED EARTH	2/72
COYOTE CREEK	U/S CHARCOT AVE	780.00	105.0	2.0	12500.	0.035	EXCAVATED EARTH	2/72
COYOTE CREEK	D/S RIDDER PARK DR.	810.00	160.0	2.0	12500.	0.035	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S OLD OAKLAND RD.	830.00	160.0	2.0	12300.	0.035	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S U.PENITENCIA CONFL	904.50	200.0	1.0	12300.	0.057	NATURAL - UNMODIFIED	3/78
COYOTE CREEK	U/S U. PENITENCIA CR	905.00	200.0	1.0	12300.	0.057	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S MABURY RD	913.00	200.0	1.0	12300.	0.057	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	CONFL.W/ LOWER SILVER	943.50	200.0	1.0	12300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	EAST JULIAN STREET	967.00	200.0	1.0	11400.	0.057	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	EAST SAN ANTONIO STREET	1008.00	100.0	1.0	11400.	0.057	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	MARGARET STREET	1040.00	100.0	1.0	12600.	0.057	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S FWY 280	1053.00	100.0	1.0	12600.	0.057	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S TULLY ROAD	1206.00	90.0	3.0	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S SHILSHONE WAY	1219.00	90.0	3.0	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	GASSMANN DR	1226.00	90.0	3.0	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	TUERS RD	1230.00	90.0	1.5	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	LEWIS RD	1255.00	110.0	1.5	13300.	0.036	NATURAL - UNMODIFIED	0/ 0

EAST ZONE REPORT (COYOTE CREEK) TABLE-A1

12/12/84

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
COYOTE CREEK	CAPITOL EXPRESSWAY	1290.00	150.0	4.0	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	CONFL.W/ UPPER SILVER	1303.00	150.0	4.0	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S UPPER SILVER CR	1303.50	150.0	4.0	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	YERBA BUENA RD	1322.00	150.0	1.5	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S HELLYER AVENUE	1380.00	150.0	1.0	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	COYOTE RD	1388.00	150.0	1.5	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S HWY 101	1408.00	150.0	1.5	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S HWY 101	1418.00	150.0	1.5	13300.	0.036	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	EDENVALE STREAM GAGE	1445.00	150.0	1.5	13700.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S DELRIDGE DR	1460.00	200.0	1.5	13700.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	CROSSLEES DR	1475.00	200.0	1.5	13700.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S FONTANOSO AVE	1509.00	200.0	1.5	13700.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	PIERCY RD (PERC. POND)	1523.00	300.0	4.0	13700.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	METCALF RD (PERC. POND)	1718.00	300.0	4.0	14900.	0.040	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	CONFL.W/ FISHER CR	1734.80	470.0	4.0	14900.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S FISHER CR CONFL	1735.00	470.0	4.0	14800.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	CONFL.W/ BRANCH "E"	1807.00	110.0	4.0	14800.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S CONFL BRANCH "E"	1814.00	200.0	4.0	14800.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S CONFL BRANCH "D"	1824.00	500.0	3.0	14800.	0.045	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S BAILEY AVE	1849.00	800.0	4.0	14800.	0.032	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S SYCAMORE AVE	1855.00	600.0	4.0	14800.	0.032	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S OGIER RD	1980.00	600.0	4.0	9740.	0.040	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S CONFL BRANCH "A"	2065.00	300.0	4.0	9740.	0.040	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S KIRBY AVE	2080.00	400.0	4.0	9740.	0.040	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	U/S KIRBY AVE	2106.00	300.0	4.0	9740.	0.040	NATURAL - UNMODIFIED	0/ 0
COYOTE CREEK	D/S BURNETT AVE	2110.00	75.0	4.0	9740.	0.040	NATURAL - UNMODIFIED	0/ 0

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                                    EAST ZONE REPORT (COYOTE CREEK) TABLE=A1                                        12/12/84

         CREEK                         LOCATION              STATION  BOTTOM  SIDE     EXIST   EXIST               CHANNEL TYPE                 DATE
                                                                      WIDTH   SLOPE     Q1%      N                                            CONST

   COYOTE CREEK               MALGUERRA RD                   2150.00    12.0     2.0   14800.  0.032   NATURAL - UNMODIFIED                      0/ 0

   COYOTE CREEK               D/S JAMES BOYS RANCH           2166.00    12.0     2.0   15000.  0.045   NATURAL - UNMODIFIED                      0/ 0

    COYOTE CREEK                LIMITS OF JURISDICTION  2225.00     LIMIT OF JURISDICTION
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                             EAST ZONE REPORT (COYOTE CREEK) TABLE-A2                                    12/12/84

                                        SUMMARY OF CHANNEL TYPES


                         THERE ARE      3.50  MILES OF   EARTHLEVEES

                         THERE ARE      1.42  MILES OF   EXCAVATED  EARTH

                         THERE ARE     37.22  MILES OF   NATURAL - UNMODIFIED


                         TOTAL         42.14  MILES
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                                            EAST ZONE REPORT (COYOTE CREEK) TABLE-A3                                    12/12/84

                                               CHANNEL ENVIRONMENTAL CONDITIONS

                                                             HABITAT TYPE                                     MULTIPURPOSES
                                                ----------------------------------------                     ---------------
                                                                                          VEGETA-
                                                NO SIG  FRESH  SALT         WOOD- RIPAR-   TIVE     HABITAT     GW    RECRE-
      CREEK            LOCATION       STATION   HABITAT MARSH  MARSH  GRASS LAND    IAN   QUANTITY  QUALITY   RECHG   ATION


COYOTE CREEK       BAY                   0.00     ENVIRONMENTAL CONDITIONS UNKNOWN                                      X

COYOTE CREEK       @ LOWER PENITENCIA  446.50                    X                        ABUNDANT  HIGH
      DOMINANT SPECIES:  CATTAILS,  CALIFORNIA BULRUSH, SMARTWEED, POISON HEMLOCK, WEEDS

COYOTE CREEK       N OF DISPOSAL       480.00                    X                        ABUNDANT  HIGH
      DOMINANT SPECIES:  POISON HEMLOCK, CALIFORNIA NETTLE, CATTAILS, SMARTWEED

COYOTE CREEK       FOOTBRIDGE          488.00                    X                        ABUNDANT  HIGH
      DOMINANT SPECIES:  CALIFORNIA BOX ELDER, CALIFORNIA NETTLE,CAT TAILS, COYOTE BRUSH,
                         COTTONWOOD, WEEDS

COYOTE CREEK       S OF DISPOSAL       500.00                    X                        ABUNDANT  HIGH
      DOMINANT SPECIES:  CALIFORNIA BOX ELDER, CALIFORNIA NETTLE, CATTAILS,COYOTE BRUSH,
                         COTTONWOOD, WEEDS

COYOTE CREEK       HIGHWAY 237         600.00                                       X     ABUNDANT  HIGH
      DOMINANT SPECIES:  COTTONWOOD, BOX ELDERS, WILLOWS, ELDERBERRY, WALNUTS, SYCAMORE,
                         CALIFORNIA BUCKEYE

COYOTE CREEK       MONTAGUE            735.00             X                         X     MODERATE  GOOD
      DOMINANT SPECIES:  WEEDS, CATTAILS, WILLOWS

COYOTE CREEK       KRUSE DR AT DADO    755.00             X                         X     MODERATE  MODERATE
      DOMINANT SPECIES:  WEEDS, WILLOWS

COYOTE CREEK       D/S CHARCOT AVE     779.20             X                         X     MODERATE  MODERATE

COYOTE CREEK       U/S CHARCOT AVE     780.00             X                         X     MODERATE  GOOD
      DOMINANT SPECIES:  WILLOWS, COTTONWOOD, COYOTE BRUSH, CATTAILS, WINTER ANNUAL GRASSES,
                         RUSSIAN THISTLE, POISON HEMLOCK

COYOTE CREEK       O'TOOLE AVE BRIDGE  793.00                                       X   VERY LOW    GOOD
      DOMINANT SPECIES:  COTTONWOOD, WILLOW, ALDER, SMILA GRASS, BOX ELDER, WEEDS

COYOTE CREEK       HWY 17              797.00             X             X           X     ABUNDANT  HIGH                X
      DOMINANT SPECIES:  COTTONWOOD, WILLOWS, BOXELDER, CATTAIL,SMARTWEED, WILD OATS, COYOTE
                         BRUSH

COYOTE CREEK       OLD OAKLAND RD      830.00             X             X           X     ABUNDANT  HIGH                X
      DOMINANT SPECIES:  COTTONWOOD, BOXELDER, WILLOWS, BLACK WALNUT, SMARTWEED, RIPGUT GRASS

COYOTE CREEK       U S 101             930.00             X             X           X     ABUNDANT  HIGH                X
      DOMINANT SPECIES:  COTTONWOOD, BOXELDER, WILLOWS, BLACK WALNUT, CATTAIL, SMARTWEED,
                         RIPGUT GRASS
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EAST ZONE REPORT (COYOTE CREEK) TABLE-A3

12/12/84

			HABITAT TYPE								MULTIPURPOSES	
CREEK	LOCATION	STATION	NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOOD-LAND	RIPAR-IAN	VEGETA-TIVE QUANTITY	HABITAT QUALITY	GW RECHG	RECRE-ATION
COYOTE CREEK	L.SILVER CREEK CON	943.50	ENVIRONMENTAL CONDITIONS UNKNOWN								X	X
COYOTE CREEK	NR SILVER CRK CONF	950.00		X				X	ABUNDANT	HIGH		X
DOMINANT SPECIES; WILLOWS, COTTONWOOD, BOXELDER, BLACK WALNUT, CATTAIL, SMARTWEED												
COYOTE CREEK	I280	1055.00		X				X	ABUNDANT	HIGH		X
DOMINANT SPECIES; COTTONWOOD, WILLOW, BOXELDER, CATTAIL, SMARTWEED, WILD OAT, RIPGUT GRASS												
COYOTE CREEK	KELLY PARK	1090.00				X	X	X	ABUNDANT	HIGH		X
DOMINANT SPECIES; COTTONWOOD, WILLOWS, BOXELDER, LIVE OAK, POISON OAK, WILD OATS, CATTAIL, SMARTWEED												
COYOTE CREEK	YERBA BUENA H S	1170.00		X		X	X	X	ABUNDANT	HIGH		X
DOMINANT SPECIES; COTTONWOOD, WILLOWS, CATTAILS, WILD OAT, LIVE OAK, POISON OAK												
COYOTE CREEK	CAPITOL EXPWY	1287.00		X		X	X	X	ABUNDANT	HIGH		X
DOMINANT SPECIES; COTTONWOOD, WILLOWS, CATTAILS, WILD OATS, LIVE OAK, POISON OAK												
COYOTE CREEK	D/S HELLYER AVE	1368.00		X		X		X	ABUNDANT	HIGH		X
DOMINANT SPECIES; COTTONWOOD, WILLOWS, CATTAILS, BULRUSHES, WILD OATS, YELLOW WATER WEED												
COYOTE CREEK	U/S HWY 101	1410.00		X		X	X	X	ABUNDANT	HIGH		X
DOMINANT SPECIES; COTTONWOOD, WILLOWS, LIVE OAK, WILD OATS, RIPGUT GRASS, BULRUSH, CATTAIL												
COYOTE CREEK	FORD RD	1520.00				X	X	X	MODERATE	GOOD	X	X
DOMINANT SPECIES; COTTONWOOD, WILLOWS, WILD OAT, RIPGUT GRASS, LIVE OAK												
COYOTE CREEK	PERC PONDS	1570.00		X		X	X	X	ABUNDANT	HIGH	X	X
DOMINANT SPECIES; WILLOWS, COTTONWOOD, LIVE OAK, YELLOW WATERWEED, BULRUSH, CATTAILS, WILD OATS												
COYOTE CREEK	TENNANT ROAD	1605.00		X		X	X	X	ABUNDANT	HIGH	X	X
DOMINANT SPECIES; COTTONWOOD, WILLOWS, CATTAILS, BULRUSH, LIVE OAK, WILD OATS												
COYOTE CREEK	METCALF RD.	1718.00	ENVIRONMENTAL CONDITIONS UNKNOWN								X	X
COYOTE CREEK	METCALF ROAD,LOJ	2225.00	LIMITS OF JURISDICTION									

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                    EAST ZONE REPORT (COYOTE CREEK) TABLE-A4                                    12/12/84

                  SUMMARY OF CHANNEL ENVIRONMENTAL CONDITIONS

               THIS SUMMARY INCLUDES A TOTAL OF    42.14  MILES  OF CHANNEL.
               HABITAT TYPES:
                    THERE ARE    15.96  MILES OF FRESHWATER MARSH
                    THERE ARE     2.91  MILES OF SALT/BRACKISH MARSH
                    THERE ARE    14.67  MILES OF GRASSLAND HABITAT
                    THERE ARE    11.10  MILES OF OAK WOODLAND HABITAT
                    THERE ARE    21.05  MILES OF RIPARIAN HABITAT
               QUANTITY OF VEGETATION:
                    THERE ARE     8.46  MILES WITH NO VEGETATION
                    THERE ARE     2.05  MILES WITH MODERATE VEGETATION
                    THERE ARE    21.84  MILES WITH ABUNDANT VEGETATION
               QUALITY OF HABITAT:
                    THERE ARE     8.46  MILES WITH VERY LOW QUALITY HABITAT
                    THERE ARE     0.47  MILES WITH MODERATE QUALITY HABITAT
                    THERE ARE     1.65  MILES WITH GOOD QUALITY HABITAT
                    THERE ARE    21.84  MILES WITH HIGH QUALITY HABITAT
               THERE ARE    13.48  MILES WHICH PROVIDE GROUNDWATER RECHARGE
               THERE ARE    35.50  MILES WHICH PROVIDE RECREATIONAL BENEFITS
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EAST ZONE REPORT (COYOTE CREEK) TABLE=A5 12/12/84

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1,0=4,0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1,0=4,0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1=4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1=4)	
COYOTE CREEK CONFL,W/ S,F, BAY	0,00	3,1	7,3	10,3	1,0	0,079	0,131	1,0	1,0
COYOTE CREEK CONFL,W/ L, PENITENCIA	446,50	3,1	14,7	9,4	2,0	0,346	0,114	2,0	2,0
COYOTE CREEK U/S L, PENITENCIA CR	447,00	3,1	14,5	9,5	2,0	0,335	0,114	2,0	2,0
COYOTE CREEK SEWAGE TREATMENT PLANT	491,00	3,1	7,5	3,7	2,0	0,135	0,039	2,0	2,0
COYOTE CREEK D/S MCCARTHY LN	550,00	3,1	5,0	3,8	2,0	0,056	0,039	2,0	2,0
COYOTE CREEK D/S HWY 237	595,00	3,2	2,6	4,3	1,0	0,016	0,044	1,0	1,0
COYOTE CREEK AGNEWS ST, HOSP	665,00	3,2	6,6	2,9	2,0	0,106	0,044	2,0	2,0
COYOTE CREEK U/S TRIMBLE ROAD	735,00	3,2	2,3	3,0	1,0	0,011	0,040	1,0	1,0
COYOTE CREEK U/S CHARCOT AVE	780,00	3,2	4,0	2,9	2,0	0,031	0,039	1,0	2,0
COYOTE CREEK D/S RIDDER PARK DR,	810,00	3,2	3,1	2,9	2,0	0,018	0,039	1,0	2,0
COYOTE CREEK U/S OLD OAKLAND RD,	830,00	3,2	3,0	2,9	2,0	0,016	0,039	1,0	2,0
COYOTE CREEK D/S U,PENITENCIA CONFL	904,50	3,3	1,7	3,2	1,0	0,004	0,038	1,0	1,0
COYOTE CREEK U/S U, PENITENCIA CR	905,00	3,3	1,7	3,2	1,0	0,004	0,038	1,0	1,0
COYOTE CREEK D/S MABURY RD	913,00	3,3	1,7	3,2	1,0	0,004	0,038	1,0	1,0
COYOTE CREEK CONFL,W/ LOWER SILVER	943,50	3,3	2,5	3,0	1,0	0,010	0,038	1,0	1,0
COYOTE CREEK EAST JULIAN STREET	967,00	3,1	2,1	3,0	1,0	0,007	0,038	1,0	1,0

CREEK	LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
				ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
COYOTE CREEK	EAST SAN ANTONIO STREET	1008.00	3.1	3.0	3.1	1.0	0.017	0.039	1.0	1.0
COYOTE CREEK	MARGARET STREET	1040.00	3.1	3.0	3.1	1.0	0.016	0.039	1.0	1.0
COYOTE CREEK	D/S FWY 280	1053.00	3.1	2.9	3.1	1.0	0.015	0.039	1.0	1.0
COYOTE CREEK	U/S TULLY ROAD	1206.00	3.3	3.2	3.0	2.0	0.022	0.040	1.0	3.2
COYOTE CREEK	U/S SHILSHONE WAY	1219.00	3.3	3.2	5.7	1.0	0.010	0.083	1.0	1.0
COYOTE CREEK	GASSMANN DR	1226.00	3.3	3.2	3.0	2.0	0.022	0.040	1.0	3.2
COYOTE CREEK	TUERS RD	1230.00	3.3	4.2	3.0	2.0	0.034	0.039	1.0	3.2
COYOTE CREEK	LEWIS RD	1255.00	3.2	7.4	2.8	2.0	0.107	0.039	2.0	2.0
COYOTE CREEK	CAPITOL EXPRESSWAY	1290.00	3.2	1.6	3.1	1.0	0.005	0.040	1.0	1.0
COYOTE CREEK	CONFL.W/ UPPER SILVER	1303.00	3.2	1.6	5.9	1.0	0.002	0.083	1.0	1.0
COYOTE CREEK	U/S UPPER SILVER CR	1303.50	3.2	1.6	5.9	1.0	0.002	0.083	1.0	1.0
COYOTE CREEK	YERBA BUENA RD	1322.00	3.2	2.8	5.7	1.0	0.006	0.081	1.0	1.0
COYOTE CREEK	U/S HELLYER AVENUE	1380.00	3.2	1.0	5.6	1.0	0.001	0.080	1.0	1.0
COYOTE CREEK	COYOTE RD	1388.00	3.2	1.4	5.3	1.0	0.002	0.080	1.0	1.0
COYOTE CREEK	D/S HWY 101	1408.00	3.2	1.7	2.7	1.0	0.006	0.039	1.0	1.0
COYOTE CREEK	U/S HWY 101	1418.00	3.2	1.7	5.1	1.0	0.003	0.080	1.0	1.0
COYOTE CREEK	EDENVALE STREAM GAGE	1445.00	3.2	6.8	5.1	2.0	0.041	0.080	1.0	2.0

EAST ZONE REPORT (COYOTE CREEK) TABLE-A5

12/12/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
COYOTE CREEK D/S DELRIDGE DR	1460.00	3.2	3.0	5.6	1.0	0.007	0.080	1.0	1.0
COYOTE CREEK CROSSLEES DR	1475.00	3.2	3.0	5.6	1.0	0.007	0.080	1.0	1.0
COYOTE CREEK D/S FONTANOSO AVE	1509.00	3.2	3.0	2.9	2.0	0.015	0.038	1.0	2.0
COYOTE CREEK PIERCY RD (PERC. POND)	1523.00	3.2	1.7	2.9	1.0	0.006	0.041	1.0	1.0
COYOTE CREEK METCALF RD (PERC. POND)	1718.00	3.1	1.6	2.9	1.0	0.005	0.041	1.0	1.0
COYOTE CREEK CONFL.W/ FISHER CR	1734.80	3.2	1.5	2.7	1.0	0.004	0.042	1.0	1.0
COYOTE CREEK U/S FISHER CR CONFL	1735.00	3.2	0.8	2.7	1.0	0.001	0.042	1.0	1.0
COYOTE CREEK CONFL.W/ BRANCH "E"	1807.00	3.2	1.7	2.9	1.0	0.006	0.040	1.0	1.0
COYOTE CREEK U/S CONFL BRANCH "E"	1814.00	3.2	1.3	2.8	1.0	0.003	0.041	1.0	1.0
COYOTE CREEK D/S CONFL BRANCH "D"	1824.00	3.2	0.8	2.7	1.0	0.001	0.041	1.0	1.0
COYOTE CREEK U/S BAILEY AVE	1849.00	3.2	1.1	2.6	1.0	0.002	0.042	1.0	1.0
COYOTE CREEK D/S SYCAMORE AVE	1855.00	3.2	1.8	2.5	1.0	0.007	0.042	1.0	1.0
COYOTE CREEK D/S OGIER RD	1980.00	3.2	0.8	2.8	1.0	0.001	0.042	1.0	1.0
COYOTE CREEK D/S CONFL BRANCH "A"	2065.00	3.2	2.8	2.5	2.0	0.018	0.042	1.0	2.0
COYOTE CREEK D/S KIRBY AVE	2080.00	3.2	1.7	2.6	1.0	0.006	0.042	1.0	1.0
COYOTE CREEK U/S KIRBY AVE	2106.00	3.2	2.0	2.7	1.0	0.008	0.041	1.0	1.0
COYOTE CREEK D/S BURNETT AVE	2110.00	3.2	6.3	2.6	2.0	0.107	0.040	2.0	2.0

EAST ZONE REPORT (COYOTE CREEK) TABLE-A5

12/12/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
COYOTE CREEK MALGUERRA RD	2150.00	3.2	20.0	2.4	2.0	1.498	0.042	2.0	2.0
COYOTE CREEK D/S JAMES BOYS RANCH	2166.00	3.2	20.0	2.4	2.0	1.483	0.043	2.0	2.0
COYOTE CREEK LIMITS OF JURISDICTION	2225.00	LIMIT OF DISTRICT			JURISDICTION				

EAST ZONE REPORT (COYOTE CREEK) TABLE=A6 1/15/85

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS 1% CFS	DESIGN FLOWS 10% CFS	EXIST CONDITIONS Q1% CFS	EXIST CONDITIONS CAPCTY CFS	EXIST CONDITIONS N	FREQ OF FLOOD (YEAR)	FLOOD DAMAGES 1% (IN 1000$)	FLOOD DAMAGES AVG ANN (IN 1000$)
COYOTE CREEK CONFL. W/ S.F. BAY	0.00	321.62	0.0	14500.	8300.	5000.	4000.	.045	2.	0.0	0.0
COYOTE CREEK U/S OF CONFL.W/ SF BAY	15.00	321.62	0.0	14500.	8300.	5000.	4000.	.045	2.	236.0	11.4
COYOTE CREEK CONFL. W/ ALVISO SLOUGH	80.00	321.62	0.0	14500.	8300.	5000.	4000.	.045	2.	939.9	45.6
COYOTE CREEK D/S NEWBY ISLAND	257.00	321.62	0.0	14500.	8300.	5000.	4000.	.045	2.	602.0	29.2
COYOTE CREEK D/S OLD MILPITAS SEWAGE	485.00	321.62	0.0	14500.	8300.	5000.	4000.	.045	2.	817.5	39.7
COYOTE CREEK D/S OF MCCARTHY LANE	560.00	321.62	0.0	14500.	8300.	5000.	2000.	.045	2.	381.5	19.1
COYOTE CREEK D/S HWY 237	595.00	320.00	0.0	14500.	8300.	5000.	3000.	.036	2.	0.0	0.0
COYOTE CREEK N OF AGNEWS ST.HOSP.	630.00	320.00	0.0	14500.	8300.	8600.	5000.	.036	3.	27195.0	1281.3
COYOTE CREEK AT AGNEWS ST. HOSP.	665.00	320.00	0.0	14500.	8300.	8600.	8600.	.045	100.	0.0	0.0
COYOTE CREEK SPECIAL STUDY(AGNW HOSP)	730.00	319.32	0.0	14500.	8200.	8600.	5000.	.035	3.	13160.0	618.2
COYOTE CREEK D/S MONTAGUE/TRIMBLE	734.00	319.32	0.0	14500.	8200.	8600.	5000.	.045	3.	3290.0	154.5
COYOTE CREEK U/S MONTAGUE/TRIMBLE	735.00	319.32	0.0	14500.	8200.	8600.	8600.	.035	100.	0.0	0.0
COYOTE CREEK ABOVE TRIMBLE RD.	755.00	319.32	0.0	14500.	8200.	12500.	8600.	.035	11.	8100.0	259.4
COYOTE CREEK D/S CHARCOT AVE.	770.00	319.32	0.0	14500.	8200.	12500.	12500.	.035	100.	0.0	0.0
COYOTE CREEK U/S HWY 17	800.00	319.32	0.0	14500.	8200.	12500.	12500.	.035	100.	0.0	0.0
COYOTE CREEK D/S SPRR	810.00	319.32	0.0	14500.	8200.	12500.	12500.	.035	100.	0.0	0.0

EAST ZONE REPORT (COYOTE CREEK) TABLE-A6

1/15/85

CREEK	STATION	DRAIN	MEAN	DESIGN FLOWS		EXIST CONDITIONS			FREQ OF	FLOOD DAMAGES	
LOCATION		AREA	ANNUAL	1%	10%	Q1%	CAPCTY	N	FLOOD	1%	AVG ANN
		SQ MI	PRECIP	CFS	CFS	CFS	CFS		(YEAR)	(IN 1000$)	
COYOTE CREEK U/S OLD OAKLAND RD.	830.00	319.32	0.0	14500.	8200.	12320.	11770.	.035	34.	1900.0	34.1
COYOTE CREEK U/S TRAILER PARK	870.00	319.32	0.0	14500.	8200.	12320.	7300.	.035	7.	500.3	18.8
COYOTE CREEK D/S UPPER PENITENCIA	904.50	315.25	0.0	14500.	8200.	12320.	7300.	.057	7.	565.5	21.2
COYOTE CREEK D/S LOWER SILVER CREEK	943.50	291.34	0.0	14500.	6800.	12320.	14500.	.036	100.	0.0	0.0
COYOTE CREEK U/S LOWER SILVER CREEK	945.50	247.84	0.0	14500.	3700.	11400.	14500.	.057	100.	0.0	0.0
COYOTE CREEK AT WILLIAM ST.	1023.00	247.84	0.0	14500.	3700.	12630.	11400.	.057	55.	5400.0	74.9
COYOTE CREEK D/S HWY 280 .	1053.00	246.46	0.0	14500.	3800.	12630.	10000.	.057	43.	1172.0	18.6
COYOTE CREEK U/S TULLY RD	1206.00	238.58	0.0	14500.	3600.	13330.	13330.	.036	100.	0.0	0.0
COYOTE CREEK U/S CAPITOL EXPWY	1290.00	238.58	0.0	14500.	3600.	13330.	13330.	.036	100.	0.0	0.0
COYOTE CREEK D/S UPPER SILVER DIV	1303.00	238.58	0.0	14500.	3600.	13330.	13330.	.036	100.	0.0	0.0
COYOTE CREEK U/S UPPER SILVER DIV	1303.50	232.62	0.0	14500.	3300.	13330.	13330.	.036	100.	0.0	0.0
COYOTE CREEK U/S YERBA BUENA AVE	1324.00	232.62	0.0	14500.	3300.	13330.	3500.	.036	10.	225.1	7.4
COYOTE CREEK AT EDENVALE STREAMGAGE	1445.00	229.05	0.0	15000.	4800.	13670.	13670.	.045	100.	0.0	0.0
COYOTE CREEK U/S FONTANOSA AVE	1550.00	221.05	0.0	15000.	4100.	14850.	13670.	.036	75.	15000.0	175.1
COYOTE CREEK NR.HWY101&RT82 INTERSEC	1560.00	221.05	0.0	15000.	4100.	14850.	14850.	.036	100.	0.0	0.0
COYOTE CREEK D/S TENNANT AVE.	1580.00	221.05	0.0	15000.	4100.	14850.	13670.	.036	75.	21.0	0.2
COYOTE CREEK U/S OF TENNANT RD	1610.00	221.05	0.0	15000.	4100.	14850.	11430.	.036	54.	74.2	1.0

EAST ZONE REPORT (COYOTE CREEK) TABLE=A6

1/15/85

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS		EXIST CONDITIONS			FREQ OF FLOOD (YEAR)	FLOOD DAMAGES (IN 1000$)	
				1% CFS	10% CFS	Q1% CFS	CAPCTY CFS	N		1%	AVG ANN
COYOTE CREEK D/S METCALF RD	1716.00	221.05	0.0	15000.	4100.	14850.	12000.	.040	56.	89.5	1.2
COYOTE CREEK D/S FISHER CREEK	1734.80	221.05	0.0	15000.	4100.	14850.	9000.	.045	32.	1.0	0.0
COYOTE CREEK U/S FISHER CREEK	1735.00	205.27	0.0	15000.	2300.	14830.	5000.	.045	20.	542.6	12.4
COYOTE CREEK U/S BAILEY AVE	1849.00	205.27	0.0	15000.	2300.	14830.	9000.	.032	44.	290.4	4.6
COYOTE CREEK U/S OF RICHMOND AVE	1910.00	205.27	0.0	15000.	2300.	11760.	4670.	.045	19.	333.2	8.0
COYOTE CREEK D/S OF OGIER RD	1980.00	205.27	0.0	15000.	2300.	9740.	7500.	.040	33.	452.2	8.1
COYOTE CREEK OPPOSITE MADRONE AVE	2075.00	205.27	0.0	15000.	2300.	9740.	7500.	.040	33.	30.0	0.5
COYOTE CREEK U/S OF BURNETT AVE	2140.00	205.27	0.0	15000.	2300.	14830.	4980.	.032	20.	12.0	0.3
COYOTE CREEK D/S ANDERSON DAM	2166.00	192.72	0.0	15000.	550.	15000.	12816.	.045	82.	27.3	0.3
COYOTE CREEK ANDERSON DAM	2225.00	0.50	LIMIT OF JURISDICTION								

TOTAL AVERAGE ANNUAL DAMAGES ($1000) = 2845.

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                    EAST ZONE REPORT (COYOTE CREEK) TABLE-A7                                    12/12/84

                                        S U M M A R Y

                         DAMAGES-INSURANCE-FLOODPROOFING-ACQUISITION

      REALESTATE INDEX= 118.0
                                   AREA      NUMBER     1%FLOOD     ANNUAL        FLOOD      FLOODPLAIN
      LAND USE                    FLOODED      OF       DAMAGES     INSURANCE     PROOFING   ACQUISITION
                                   ACRES      BLDGS     (1000$)     (1000$/YR)    (1000$)    (1000$)


         SF RESIDENT               1117.      5173.      22236.       2095.6       51726.       666612.
         APT RESID                  158.      1065.       5155.        383.5        1360.       141343.
         MOBILE HOME                256.      2187.      13476.        742.6        2916.       228991.
         COMMERCIAL                 180.        74.       2862.        328.7        3026.       136391.
         INDUSTRIAL                1255.       350.      33075.       1084.5        8619.       667910.
         SCHLS,PUBLC                228.        63.       2057.        195.3        1936.       132198.
         OPEN IMPRVD                799.         0.        176.          0.0           0.       115562.
         AGRICULTURE               4404.         0.        252.          0.0           0.       766367.
         VACLND/S,PND              1544.         0.       1307.          0.0           0.       176605.


         TOTAL                     9940.      8911.      80596.       4830.1       69583.      3031979.
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EAST ZONE REPORT (COYOTE CREEK) TABLE=A8 12/12/84

S U M M A R Y

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGULATION	DISCOURAGEMENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCTURE	ENLARGE CULVERT
0.00	XXX	XXX	XXX	XXX	XXX		XXX					
15.00	XXX	XXX	XXX	XXX	XXX		XXX					
80.00	XXX	XXX	XXX	XXX	XXX		XXX					
257.00	XXX	XXX	XXX	XXX	XXX		XXX					
415.00	XXX	XXX	XXX	XXX	XXX		XXX					
446.50	XXX	XXX	XXX	XXX	XXX		XXX					
447.00	XXX	XXX	XXX	XXX	XXX		XXX					
480.00	XXX	XXX	XXX	XXX	XXX		XXX					
485.00	XXX	XXX	XXX	XXX	XXX		XXX					
488.00	XXX	XXX	XXX	XXX	XXX		XXX					
491.00	XXX	XXX	XXX	XXX	XXX		XXX					
500.00	XXX	XXX	XXX	XXX	XXX		XXX					
550.00	XXX	XXX	XXX	XXX	XXX		XXX					
560.00	XXX	XXX	XXX	XXX	XXX		XXX					
595.00	XXX	XXX	XXX	XXX	XXX		XXX					
600.00	XXX	XXX	XXX	XXX	XXX		XXX					
630.00	XXX	XXX	XXX	XXX	XXX		XXX					
665.00	XXX	XXX	XXX	XXX	XXX		XXX					
730.00	XXX	XXX	XXX	XXX	XXX		XXX					
734.00	XXX	XXX	XXX	XXX	XXX		XXX					
735.00	XXX	XXX	XXX	XXX	XXX		XXX					
735.00	XXX	XXX	XXX	XXX	XXX		XXX					
755.00	XXX	XXX	XXX	XXX	XXX		XXX					
770.00	XXX	XXX	XXX	XXX	XXX		XXX					
779.20	XXX	XXX	XXX	XXX	XXX		XXX					
780.00	XXX	XXX	XXX	XXX	XXX		XXX					
793.00	XXX	XXX	XXX	XXX	XXX		XXX					
797.00	XXX	XXX	XXX	XXX	XXX		XXX					
800.00	XXX	XXX	XXX	XXX	XXX		XXX					
810.00	XXX	XXX	XXX	XXX	XXX		XXX					
830.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
870.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
904.50	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
905.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
913.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
930.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
943.50	XXX	XXX										
945.50	XXX	XXX										
950.00	XXX	XXX										
967.00	XXX	XXX										
1008.00	XXX	XXX										
1023.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
1040.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
1053.00	XXX	XXX	XXX	XXX	XXX		XXX					
1055.00	XXX	XXX	XXX	XXX	XXX		XXX					
1090.00	XXX	XXX	XXX	XXX	XXX		XXX					

EAST ZONE REPORT (COYOTE CREEK) TABLE=A8 12/12/84

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	CONST BYPASS	WATERSHED TREATMENT	CONST DAM/ RESERV	INSTALL SEDIMENT BASIN	EMERGENCY PROCEDURE /WARNING	INSUR REGUL MANAG	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
							INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
0.00						XXX				XXX	XXX
15.00						XXX	XXX			XXX	XXX
80.00						XXX	XXX			XXX	XXX
257.00						XXX	XXX			XXX	XXX
415.00						XXX	XXX			XXX	XXX
446.50						XXX	XXX		XXX	XXX	XXX
447.00						XXX	XXX		XXX	XXX	XXX
480.00						XXX	XXX		XXX	XXX	XXX
485.00						XXX	XXX		XXX	XXX	XXX
488.00						XXX	XXX		XXX	XXX	XXX
491.00						XXX	XXX		XXX	XXX	XXX
500.00						XXX	XXX		XXX	XXX	XXX
550.00						XXX	XXX		XXX	XXX	XXX
560.00						XXX	XXX		XXX	XXX	XXX
595.00						XXX	XXX		XXX	XXX	XXX
600.00						XXX	XXX		XXX	XXX	XXX
630.00						XXX	XXX		XXX	XXX	XXX
665.00						XXX			XXX	XXX	
730.00						XXX	XXX		XXX	XXX	XXX
734.00						XXX	XXX		XXX	XXX	XXX
735.00		XXX		XXX		XXX			XXX	XXX	
735.00		XXX		XXX		XXX			XXX	XXX	
755.00		XXX		XXX		XXX	XXX			XXX	XXX
770.00		XXX		XXX		XXX				XXX	
779.20		XXX		XXX		XXX				XXX	
780.00						XXX			XXX	XXX	
793.00						XXX			XXX	XXX	
797.00						XXX			XXX	XXX	
800.00						XXX			XXX	XXX	
810.00						XXX			XXX	XXX	
830.00					XXX	XXX	XXX		XXX	XXX	XXX
870.00					XXX	XXX	XXX		XXX	XXX	XXX
904.50					XXX	XXX	XXX		XXX	XXX	XXX
905.00					XXX	XXX	XXX		XXX	XXX	XXX
913.00					XXX	XXX	XXX		XXX	XXX	XXX
930.00					XXX	XXX	XXX		XXX	XXX	XXX
943.50											
945.50											
950.00									XXX		
967.00									XXX		
1008.00									XXX		
1023.00			XXX		XXX	XXX	XXX		XXX	XXX	XXX
1040.00			XXX		XXX	XXX	XXX		XXX	XXX	XXX
1053.00						XXX	XXX		XXX	XXX	XXX
1055.00						XXX	XXX		XXX	XXX	XXX
1090.00						XXX	XXX		XXX	XXX	XXX

EAST ZONE REPORT (COYOTE CREEK) TABLE-A8

12/12/84

STATION	REGULATION	DISCOURAGEMENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCTURE	ENLARGE CULVERT
1170.00	XXX	XXX	XXX	XXX	XXX		XXX					
1206.00	XXX	XXX	XXX	XXX	XXX		XXX					
1219.00	XXX	XXX	XXX	XXX	XXX		XXX					
1226.00	XXX	XXX	XXX	XXX	XXX		XXX					
1230.00	XXX	XXX	XXX	XXX	XXX		XXX					
1255.00	XXX	XXX	XXX	XXX	XXX		XXX					
1287.00	XXX	XXX	XXX	XXX	XXX		XXX					
1290.00	XXX	XXX	XXX	XXX	XXX		XXX					
1303.00	XXX	XXX	XXX	XXX	XXX		XXX					
1303.50	XXX	XXX	XXX	XXX	XXX		XXX					
1322.00	XXX	XXX	XXX	XXX	XXX		XXX					
1324.00	XXX	XXX	XXX	XXX	XXX		XXX					
1368.00	XXX	XXX	XXX	XXX	XXX		XXX					
1380.00	XXX	XXX	XXX	XXX	XXX		XXX					
1388.00	XXX	XXX	XXX	XXX	XXX		XXX					
1408.00	XXX	XXX	XXX	XXX	XXX		XXX					
1410.00	XXX	XXX	XXX	XXX	XXX		XXX					
1418.00	XXX	XXX	XXX	XXX	XXX		XXX					
1445.00	XXX	XXX	XXX	XXX	XXX		XXX					
1460.00	XXX	XXX	XXX	XXX	XXX		XXX					
1475.00	XXX	XXX	XXX	XXX	XXX		XXX					
1509.00	XXX	XXX	XXX	XXX	XXX		XXX					
1520.00	XXX	XXX	XXX	XXX	XXX		XXX					
1523.00	XXX	XXX	XXX	XXX	XXX		XXX					
1550.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
1560.00	XXX	XXX	XXX	XXX	XXX		XXX					
1570.00	XXX	XXX	XXX	XXX	XXX		XXX					
1580.00	XXX	XXX	XXX	XXX	XXX		XXX					
1605.00	XXX	XXX	XXX	XXX	XXX		XXX					
1610.00	XXX	XXX	XXX	XXX	XXX		XXX					
1716.00	XXX	XXX	XXX	XXX	XXX		XXX					
1718.00	XXX	XXX	XXX	XXX	XXX		XXX					
1734.80	XXX	XXX	XXX	XXX	XXX		XXX					
1735.00	XXX	XXX	XXX	XXX	XXX		XXX					
1807.00	XXX	XXX	XXX	XXX	XXX		XXX					
1814.00	XXX	XXX	XXX	XXX	XXX		XXX					
1824.00	XXX	XXX	XXX	XXX	XXX		XXX					
1849.00	XXX	XXX	XXX	XXX	XXX		XXX					
1855.00	XXX	XXX	XXX	XXX	XXX		XXX					
1910.00	XXX	XXX	XXX	XXX	XXX		XXX					
1980.00	XXX	XXX	XXX	XXX	XXX		XXX					
2065.00	XXX	XXX	XXX	XXX	XXX		XXX					
2075.00	XXX	XXX	XXX	XXX	XXX		XXX					
2080.00	XXX	XXX	XXX	XXX	XXX		XXX					
2106.00	XXX	XXX	XXX	XXX	XXX		XXX					

EAST ZONE REPORT (COYOTE CREEK) TABLE=A8 12/12/84

STATION	CONST	WATERSHED	CONST	INSTALL	EMERGENCY	INSUR	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
	BYPASS	TREATMENT	DAM/ RESERV	SEDIMENT BASIN	PROCEDURE /WARNING	REGUL MANAG	INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
1170.00						XXX	XXX		XXX	XXX	XXX
1206.00						XXX			XXX	XXX	
1219.00						XXX			XXX	XXX	
1226.00		XXX		XXX		XXX			XXX	XXX	
1230.00						XXX			XXX	XXX	
1255.00		XXX		XXX		XXX			XXX	XXX	
1287.00		XXX		XXX		XXX			XXX	XXX	
1290.00						XXX			XXX	XXX	
1303.00						XXX			XXX	XXX	
1303.50						XXX			XXX	XXX	
1322.00						XXX			XXX	XXX	
1324.00						XXX	XXX		XXX	XXX	XXX
1368.00						XXX	XXX		XXX	XXX	XXX
1380.00		XXX		XXX		XXX	XXX		XXX	XXX	XXX
1388.00						XXX	XXX		XXX	XXX	XXX
1408.00						XXX	XXX		XXX	XXX	XXX
1410.00						XXX	XXX		XXX	XXX	XXX
1418.00						XXX	XXX		XXX	XXX	XXX
1445.00						XXX			XXX	XXX	
1460.00						XXX			XXX	XXX	
1475.00						XXX			XXX	XXX	
1509.00						XXX			XXX	XXX	
1520.00						XXX			XXX	XXX	
1523.00						XXX			XXX	XXX	
1550.00					XXX	XXX	XXX		XXX	XXX	XXX
1560.00						XXX			XXX	XXX	
1570.00						XXX			XXX	XXX	
1580.00						XXX	XXX		XXX	XXX	XXX
1605.00						XXX	XXX		XXX	XXX	XXX
1610.00						XXX	XXX		XXX	XXX	XXX
1716.00						XXX	XXX		XXX	XXX	XXX
1718.00						XXX	XXX			XXX	XXX
1734.80						XXX	XXX			XXX	XXX
1735.00						XXX	XXX			XXX	XXX
1807.00						XXX	XXX			XXX	XXX
1814.00						XXX	XXX			XXX	XXX
1824.00						XXX	XXX			XXX	XXX
1849.00						XXX	XXX			XXX	XXX
1855.00						XXX	XXX			XXX	XXX
1910.00						XXX	XXX			XXX	XXX
1980.00						XXX	XXX			XXX	XXX
2065.00						XXX	XXX			XXX	XXX
2075.00						XXX	XXX			XXX	XXX
2080.00						XXX	XXX			XXX	XXX
2106.00						XXX	XXX			XXX	XXX

EAST ZONE REPORT (COYOTE CREEK) TABLE-A8 12/12/84

STATION	REGU-LATION	DIS-COURAGE-MENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCT-URE	ENLARGE CULVERT
2110.00	XXX	XXX	XXX	XXX	XXX		XXX					
2140.00	XXX	XXX	XXX	XXX	XXX		XXX					
2150.00	XXX	XXX	XXX	XXX	XXX		XXX					
2166.00	XXX	XXX	XXX	XXX	XXX		XXX					

EAST ZONE REPORT (COYOTE CREEK) TABLE=A8 12/12/84

STATION	CONST BYPASS	WATERSHED TREATMENT	CONST DAM/ RESERV	INSTALL SEDIMENT BASIN	EMERGENCY PROCEDURE /WARNING	INSUR REGUL MANAG	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
							INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
2110.00						XXX	XXX			XXX	XXX
2140.00						XXX	XXX			XXX	XXX
2150.00						XXX	XXX			XXX	XXX
2166.00						XXX	XXX			XXX	XXX

ELEMENTS (I.E. PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF COYOTE CREEK
BETWEEN 2225.00 AND 2166.00

REGULATION TO PREVENT OCCURANCE OF PROBLEM
DISCOURAGEMENT OF INAPPROPRIATE LAND USES

EAST ZONE REPORT (COYOTE CREEK) TABLE-A9 12/13/84
REACH 1 (INBOARD LEVEE TO MONTAGUE EXPRESSWAY)
(STATION 0+00 TO STATION 734+00)
-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	265	$530,000
EARTHWORK				
-Excavate	$5.00	C.Y.	326230	$1,631,150
-Balance Cut & Fill	$7.00	C.Y.	532690	$3,728,830
-Fill (Levees)	$7.00	C.Y.	180600	$1,264,200
-Fill (Displ. & Floating)	$8.00	C.Y.	405000	$3,240,000
-Geo Grid (Floating Levee)	$2.00	S.Y.	60000	$120,000
CHANNEL LINING				
-Rock Rip-Rap	$45.00	C.Y.	67980	$3,059,100
-Armoring Aggregate	$20.00	C.Y.	1680	$33,600
-Concrete Trapezoidal	$225.00	C.Y.	3260	$733,500
STRUCTURAL				
-Retainng Wall	$400.00	C.Y.	106	$42,400
-Floodwall	$400.00	C.Y.	730	$292,000
-Lining for Flash Dam	$400.00	C.Y.	220	$88,000
FENCING	$10,000.00	L.S.	------	$10,000
RELOCATION				
-Hetch-Hetchy	$700,000.00	L.S.	------	$700,000
-PG&E Gas Lines	$50,000.00	L.S.	------	$50,000
-Concrete Pipe	$20.00	L.F.	3500	$70,000
-Structures	$68,000.00	L.S.	------	$68,000
-Pump Relocation	$9,200.00	L.S.	------	$9,200
-Well Sealing & Relocation	$42,500.00	L.S.	------	$42,500
MISCELLANEOUS				
-AC Paving	$80.00	C.Y.	550	$44,000
-Class 3 Base	$20.00	C.Y.	1500	$30,000
-Class 3 Aggregate	$20.00	C.Y.	34870	$697,400
-Armoring Aggregate	$20.00	C.Y.	25100	$502,000
-Slurry near Flash Dam	$60.00	C.Y.	100	$6,000
-SlurryTrench Cut-Off Wall	$550,000.00	L.S.	------	$550,000
-Bridge Removal (D/S 237)	$15,000.00	L.S.	------	$15,000
-Salt Pond Removal	$3.00	C.Y.	26550	$79,650
-Sludge Pond Removal	$430,000.00	L.S.	------	$430,000
-Milpitas STP Removal	$354,700.00	L.S.	------	$354,700
REVEGETATION	$740,000.00	L.S.	------	$740,000
-SUBTOTAL-				$19,161,230
MOBILIZATION (5%)				$958,062
CONSTRUCTION CONTINGENCES (10%)				$1,916,123
-TOTAL CONSTRUCTION COSTS-				$22,035,415
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$3,966,375
RIGHT OF WAY	$0	L.S.	------	$0

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $26,001,789

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

EAST ZONE REPORT (COYOTE CREEK) TABLE-A9 12/13/84

REACH 2 (MONTAGUE EXPRESSWAY TO US 101)

(STATION 734+00 TO STATION 930+00)

-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	45	$90,000
EARTHWORK				
-Levee	$5.00	C.Y.	14000	$70,000
-Excavation	$2.50	C.Y.	520000	$1,300,000
STRUCTURAL				
-Floodwalls	$300.00	C.Y.	89	$26,700
UTILITY RELOCATION	$63,700.00	L.S.	------	$63,700
-SUBTOTAL-				$1,550,400
MOBILIZATION (5%)				$77,520
CONSTRUCTION CONTINGENCES (10%)				$155,040
-TOTAL CONSTRUCTION COSTS-				$1,782,960
NGINEERING, ADMINISTRATION, & INSPECTION (18%)				$320,933
RIGHT OF WAY	$3,183,000	L.S.	------	$3,183,000

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $5,286,893

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

EAST ZONE REPORT (COYOTE CREEK) TABLE-A9 12/13/84
REACH 3 (US 101 TO INTERSTATE 280)
(STATION 930+00 TO STATION 1053+00)
-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	13.3	$26,600
EARTHWORK				
-Levee	$5.00	C.Y.	11000	$55,000
Excavation	$2.50	C.Y.	179000	$447,500
CHANNEL LINING				
-Gabions	$150.00	C.Y.	2200	$330,000
-SUBTOTAL-				$859,100
MOBILIZATION (5%)				$42,955
CONSTRUCTION CONTINGENCES (10%)				$85,910
-TOTAL CONSTRUCTION COSTS-				$987,965
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$177,834
IGHT OF WAY	$3,595,000	L.S.	------	$3,595,000

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $4,760,799

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

EAST ZONE REPORT (COYOTE CREEK) TABLE-A9 12/13/84
REACH 4 (INTERSTATE 280 TO US 101)
(STATION 1053+00 TO STATION 1410+00)
-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	5.1	$10,200
EARTHWORK				
-Levee	$5.00	C.Y.	32000	$160,000
CHANNEL LINING				
-Gabions	$150.00	C.Y.	1450	$217,500
STRUCTURAL				
-Tully Road Bridge	$100.00	S.F.	18900	$1,890,000
-Floodwalls	$300.00	C.Y.	117	$35,100
-SUBTOTAL-				$2,312,800
MOBILIZATION (5%)				$115,640
CONSTRUCTION CONTINGENCES (10%)				$231,280
-TOTAL CONSTRUCTION COSTS-				$2,659,720
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$478,750
RIGHT OF WAY	$363,000	L.S.	------	$363,000
BASELINE DATE (11/84) INDEX= 5122.03			PROJECT COST =	$3,501,470

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

EAST ZONE REPORT (COYOTE CREEK) TABLE-A9 12/13/84
REACH 5 (US 101 TO METCALF ROAD)
(STATION 1410+00 TO STATION 1716+00)
-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	0	$0
EARTHWORK				
-Levee	$5.00	C.Y.	44900	$224,500
-Remove Pond Levee	$2.00	C.Y.	28000	$56,000
STRUCTURAL				
-Fontanosa Ave Bridge	$100.00	S.F.	10400	$1,040,000
-Tennant Road Bridge	$100.00	S.F.	7800	$780,000
-SUBTOTAL-				$2,100,500
MOBILIZATION (5%)				$105,025
CONSTRUCTION CONTINGENCES (10%)				$210,050
-TOTAL CONSTRUCTION COSTS-				$2,415,575
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$434,804
RIGHT OF WAY	$96,000	L.S.	-----	$96,000

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $2,946,379

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

FISHER CREEK (4023)

Watercourse Inventory

Watershed Description

Fisher Creek (drainage area 15.8 square miles) meanders eight miles from the confluence with Coyote Creek to the limit of District jurisdiction. Fisher Creek flows through the cities of Morgan Hill and San Jose as well as unincorporated areas of Santa Clara County. Fisher Creek is primarily unimproved. Channel characteristics are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

Fisher Creek supports some high quality marsh and riparian habitat below Laguna Avenue. Abundance and quality of vegetation tends to decrease upstream. Sparse low quality habitat exists upstream of Miramonte Avenue. No recharge or recreation facilities exist on Fisher Creek. Detailed descriptions and summaries of environmental conditions are given in Tables A3 and A4 respectively.

Sediment and Erosion

No significant erosion or sediment problems have been observed on Fisher Creek. A summary of observed and potential erosion is given in Table A5.

Flood Potential

One Percent Flooding

All of Fisher Creek, upstream of Bailey Avenue, is natural and not well-defined. Flooding conditions are the result of both poor local drainage and inadequate channel capacity. All of the bridges or culverts upstream of Bailey Avenue are inadequate except those at Richmond and Palm Avenues. The Bailey Avenue culvert is adequate.

Most of the floodplain is currently used for agriculture, although there are a few small residential areas, one industrial plant and a private airfield. Flood depths vary with up to two feet of ponding.

The channel is inadequate to contain the expected 1% flowrate of 2,160 cfs. Downstream of Bailey Avenue (about Station 85+00) a large spill occurs on the west side (1,460 cfs), which flows northwest overland, ponding and eventually returning to the channel downstream (590 cfs).

Flooding Damages

Damages which would result from a 1% flood on Fisher Creek are estimated to be $750,000. Average annual damages are estimated to be $36,000. A breakdown of potential 1% flood damage and average annual damage by reach is presented in Table A7.

Remedial Measures

Flood Control Elements

Providing 1% flood protection on Fisher Creek will necessitate remedial measures along the entire channel. A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

1. Coyote Creek to Bailey Avenue - To increase the channel capacity in this reach to the 1% flood flow it is proposed that: 1) a triple box culvert be constructed under Monterey Road and the SPRR; and 2) 10,100 feet of earth channel be excavated.
2. Bailey Avenue to Limit of District Jurisdiction - An excavated earth channel is proposed for this 32,000 foot reach. There are ten culverts which will require replacement along this reach.

Cost Estimates

The total cost of the flood control elements is estimated at $14.7 million. Annual operation and maintenance costs are estimated at $40,000. Table A9 gives a summary of the construction costs for the remedial flood control elements proposed on Fisher Creek.

Funding

Remedial flood control measures will most likely be constructed by developers as land use is converted from rural to urban. A breakdown by reach of all possible funding sources is given in Table A10.

EAST ZONE REPORT (FISHER CREEK) TABLE-A1 12/13/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
FISHER CREEK	CONFL.W/ COYOTE CR	0.00	8.0	1.5	700.	0.040	EARTHLEVEES	0/ 0
FISHER CREEK	D/S MONTEREY HWY RCB	1.00	21.0	12.0	700.	0.015	BOX CULVERT	0/ 0
FISHER CREEK	U/S MONTEREY HWY RCB	2.20	25.0	2.0	700.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	D/S S.P.R.R. RCB	3.10	25.0	12.0	700.	0.015	BOX CULVERT	0/ 0
FISHER CREEK	U/S S.P.R.R. RCB	3.50	10.0	2.0	2560.	0.030	EARTHLEVEES	0/ 0
FISHER CREEK	D/S SANTA TERESA RCB	51.00	12.0	12.0	2560.	0.015	BOX CULVERT	0/ 0
FISHER CREEK	U/S SANTA TERESA RCB	54.50	10.0	2.0	2560.	0.030	EARTHLEVEES	0/ 0
FISHER CREEK	D/S BAILEY AVE	80.00	4.0	1.0	2160.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	D/S BAILEY AVE RCB	100.00	10.0	5.0	2160.	0.030	BOX CULVERT	0/ 0
FISHER CREEK	U/S BAILEY AVE RCB	102.00	4.0	1.0	1190.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	U/S BRANCH "C"	111.00	4.0	1.0	1190.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	PATH XING	125.00	12.0	1.5	1190.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	D/S FISHER/LAGUNA RD	140.00	15.0	2.0	1190.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	D/S FISHER RD RCB	143.00	10.0	5.0	1190.	0.015	BOX CULVERT	0/ 0
FISHER CREEK	U/S FISHER RD RCB	144.00	8.0	3.0	1190.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	AT SANTA TERESA BLVD	155.00	8.0	2.0	1190.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	D/S RICHMOND AVE	165.00	4.0	2.0	1190.	0.030	EXCAVATED EARTH	0/ 0
FISHER CREEK	D/S RICHMOND AVE RCB	175.70	10.0	5.0	1190.	0.015	BOX CULVERT	0/ 0
FISHER CREEK	U/S RICHMOND AVE RCB	176.00	5.0	2.0	700.	0.040	EXCAVATED EARTH	0/ 0
FISHER CREEK	U/S CONFL BRANCH "D"	197.00	5.0	2.0	700.	0.040	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	D/S SCHELLER AVE	204.00	2.0	1.0	700.	0.040	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	D/S HALE AVE	230.00	2.0	1.0	700.	0.040	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	D/S KALANA AVE	243.00	2.0	1.0	1130.	0.035	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	D/S SANTA TERESA BLVD	255.00	2.0	0.8	1130.	0.035	NATURAL - UNMODIFIED	0/ 0

EAST ZONE REPORT (FISHER CREEK) TABLE-A1

12/13/84

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
FISHER CREEK	D/S CONFL BRANCH "E"	265.00	1.5	0.8	1130.	0.035	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	U/S MIRAMONTE AVE	292.00	1.5	0.8	710.	0.028	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	LIVE OAK AVE	315.00	1.5	0.8	710.	0.028	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	BLOSSOM CT	338.00	1.5	0.8	710.	0.028	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	MADRONE AVE	346.00	1.0	0.8	710.	0.028	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	U/S MADRONE AVE	349.00	1.0	0.8	710.	0.028	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	WILLOW SPRINGS RD	364.00	1.0	0.8	710.	0.028	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	CONFL.W/ WILLOW SPRINGS	369.00	1.0	0.8	560.	0.032	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	U/S WILLOW SPRINGS CONF	369.50	1.0	0.8	560.	0.032	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	TILTON AVE	383.00	1.0	0.8	560.	0.032	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	U/S TILTON AVE	385.00	1.0	0.8	560.	0.032	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	HALE/SANTA TERESA TRAN	394.00	5.0	1.0	560.	0.032	NATURAL - UNMODIFIED	0/ 0
FISHER CREEK	U/S PEBBLES AVE	405.00	6.0	1.0	560.	0.032	EXCAVATED EARTH	0/ 0
FISHER CREEK		412.00	6.0	1.0	560.	0.032	EXCAVATED EARTH	0/ 0
FISHER CREEK		419.00	6.0	1.0	560.	0.032	EXCAVATED EARTH	0/ 0
FISHER CREEK	LIMIT OF JURISDICTION	422.00	LIMIT OF JURISDICTION					

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                       EAST ZONE REPORT (FISHER CREEK) TABLE-A2                              12/13/84


                                   SUMMARY OF CHANNEL TYPES


                    THERE ARE     0.16  MILES OF   BOX CULVERT

                    THERE ARE     1.40  MILES OF   EARTHLEVEES

                    THERE ARE     2.49  MILES OF   EXCAVATED  EARTH

                    THERE ARE     3.94  MILES OF   NATURAL - UNMODIFIED



                    TOTAL         7.99  MILES
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CHANNEL ENVIRONMENTAL CONDITIONS

			HABITAT TYPE								MULTIPURPOSES	
CREEK	LOCATION	STATION	NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOOD-LAND	RIPAR-IAN	VEGETA-TIVE QUANTITY	HABITAT QUALITY	GW RECHG	RECRE-ATION
FISHER CREEK	LAGUNA A.	0.00		X				X	ABUNDANT	HIGH		
DOMINANT SPECIES:	WILLOWS, BULRUSHES, BLACK WALNUT, HYDROPHILES, BLACKBERRIES, VALLEY OAK, CATTAIL											
FISHER CREEK	D/S RICHMOND AVE	160.00				X		X	MODERATE	MODERATE		
DOMINANT SPECIES:	BLACK WALNUT, VALLEY OAK, BLACKBERRY											
FISHER CREEK	D/S SCHELLER AVE	200.00				X			MODERATE	MODERATE		
DOMINANT SPECIES:	WEEDS, GRASSES, HYDROPHILES											
FISHER CREEK	HALE AVE	232.00						X	MODERATE	MODERATE		
DOMINANT SPECIES:	BAY, BUCKEYE, VALLEY OAK, LIVE OAK, BLACK WALNUT											
FISHER CREEK	HALE AVE	256.00				X			MODERATE	MODERATE		
DOMINANT SPECIES:	HERBS, GRASSES, WEEDS, HYDROPHILES											
FISHER CREEK	SAN BRUNO AVE	262.00				X			MODERATE	MODERATE		
DOMINANT SPECIES:	HERBS, GRASSES, WEEDS, PRUNE PLUMS											
FISHER CREEK	MIRAMONTE AVE	280.00				X			SPARSE	VERY LOW		
DOMINANT SPECIES:	HERBS, GRASSES, SOME HYDROPHILES, PRUNE PLUMS											
FISHER CREEK	HALE(MADRONE-L.O.)	325.00				X			SPARSE	LOW		
DOMINANT SPECIES:	HERBS, GRASSSES, LIVE OAK											
FISHER CREEK	HALE(MADRONE-L.O.)	363.00				X			MODERATE	LOW		
DOMINANT SPECIES:	EUCALYPTUS, GRASSES, HERBS											
FISHER CREEK	U/S WILLOW SPRINGS	370.00				X			SPARSE	LOW		
DOMINANT SPECIES:	HERBS, GRASSES, WEEDS, LIVE OAK											
FISHER CREEK	D/S TILTON AVE	380.00				X			SPARSE	VERY LOW		
DOMINANT SPECIES:	HERBS, GRASSES, WEEDS											
FISHER CREEK	HALE NR CAMPOLI	422.00	LIMITS OF JURISDICTION									

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                        EAST ZONE REPORT (FISHER CREEK) TABLE-A4                                    12/13/84

                          SUMMARY OF CHANNEL ENVIRONMENTAL CONDITIONS

                   THIS SUMMARY INCLUDES A TOTAL OF     7.99  MILES  OF CHANNEL.
                   HABITAT TYPES:
                        THERE ARE     3.03  MILES OF FRESHWATER MARSH
                        THERE ARE     4.51  MILES OF GRASSLAND HABITAT
                        THERE ARE     4.24  MILES OF RIPARIAN HABITAT
                   QUANTITY OF VEGETATION:
                        THERE ARE     2.56  MILES WITH SPARSE VEGETATION
                        THERE ARE     2.41  MILES WITH MODERATE VEGETATION
                        THERE ARE     3.03  MILES WITH ABUNDANT VEGETATION
                   QUALITY OF HABITAT:
                        THERE ARE     1.65  MILES WITH VERY LOW QUALITY HABITAT
                        THERE ARE     1.04  MILES WITH LOW QUALITY HABITAT
                        THERE ARE     2.27  MILES WITH MODERATE QUALITY HABITAT
                        THERE ARE     3.03  MILES WITH HIGH QUALITY HABITAT
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EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
FISHER CREEK CONFL.W/ COYOTE CR	0.00	3.2	3.3	6.8	1.0	0.016	0.141	1.0	1.0
FISHER CREEK D/S MONTEREY HWY RCB	1.00				NON-ERODING REACH				
FISHER CREEK U/S MONTEREY HWY RCB	2.20	3.2	2.5	6.5	1.0	0.009	0.714	1.0	1.0
FISHER CREEK D/S S.P.R.R. RCB	3.10				NON-ERODING REACH				
FISHER CREEK U/S S.P.R.R. RCB	3.50	3.2	8.5	6.9	2.0	0.113	0.133	1.0	2.0
FISHER CREEK D/S SANTA TERESA RCB	51.00				NON-ERODING REACH				
FISHER CREEK U/S SANTA TERESA RCB	54.50	3.2	6.3	7.1	1.0	0.058	0.136	1.0	1.0
FISHER CREEK D/S BAILEY AVE	80.00	3.2	3.2	9.8	1.0	0.019	0.155	1.0	1.0
FISHER CREEK D/S BAILEY AVE RCB	100.00				NON-ERODING REACH				
FISHER CREEK U/S BAILEY AVE RCB	102.00	3.2	12.2	8.1	2.0	0.267	0.155	2.0	2.0
FISHER CREEK U/S BRANCH "C"	111.00	3.2	11.7	8.2	2.0	0.244	0.155	2.0	2.0
FISHER CREEK PATH XING	125.00	3.1	7.1	8.0	1.0	0.080	0.128	1.0	1.0
FISHER CREEK D/S FISHER/LAGUNA RD	140.00	3.2	20.0	6.2	2.0	0.720	0.112	2.0	2.0
FISHER CREEK D/S FISHER RD RCB	143.00				NON-ERODING REACH				
FISHER CREEK U/S FISHER RD RCB	144.00	3.2	3.0	1.8	2.0	0.019	0.041	1.0	2.0
FISHER CREEK AT SANTA TERESA BLVD	155.00	3.2	12.4	7.5	2.0	0.291	0.125	2.0	2.0

EAST ZONE REPORT (FISHER CREEK) TABLE-A5 12/13/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOWABLE VELOCITY ALLOW FT/SEC	ALLOWABLE VELOCITY CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	TRACTIVE FORCE ALLOW LB/SF	TRACTIVE FORCE CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
FISHER CREEK D/S RICHMOND AVE	165.00	3.2	20.0	7.2	2.0	0.840	0.133	2.0	2.0
FISHER CREEK D/S RICHMOND AVE RCB	175.70				NON-ERODING REACH				
FISHER CREEK U/S RICHMOND AVE RCB	176.00	3.2	9.3	6.1	2.0	0.170	0.133	2.0	2.0
FISHER CREEK U/S CONFL BRANCH "D"	197.00	3.2	13.5	5.8	2.0	0.375	0.129	2.0	2.0
FISHER CREEK D/S SCHELLER AVE	204.00	3.2	14.6	6.3	2.0	0.433	0.164	2.0	2.0
FISHER CREEK D/S HALE AVE	230.00	3.2	14.6	6.3	2.0	0.433	0.164	2.0	2.0
FISHER CREEK D/S KALANA AVE	243.00	3.2	20.0	6.3	2.0	0.814	0.164	2.0	2.0
FISHER CREEK D/S SANTA TERESA BLVD	255.00	3.2	20.0	5.8	2.0	0.980	0.158	2.0	2.0
FISHER CREEK D/S CONFL BRANCH "E"	265.00	3.2	20.0	5.5	2.0	1.078	0.158	2.0	2.0
FISHER CREEK U/S MIRAMONTE AVE	292.00	3.2	20.0	5.5	2.0	1.078	0.158	2.0	2.0
FISHER CREEK LIVE OAK AVE	315.00	3.2	20.0	5.5	2.0	1.078	0.158	2.0	2.0
FISHER CREEK BLOSSOM CT	338.00	3.2	20.0	5.5	2.0	1.078	0.158	2.0	2.0
FISHER CREEK MADRONE AVE	346.00	3.2	20.0	5.8	2.0	1.066	0.173	2.0	2.0
FISHER CREEK U/S MADRONE AVE	349.00	3.2	20.0	4.1	2.0	2.414	0.123	2.0	2.0
FISHER CREEK WILLOW SPRINGS RD	364.00	3.2	20.0	4.7	2.0	1.286	0.152	2.0	2.0
FISHER CREEK CONFL.W/ WILLOW SPRINGS	369.00	3.2	20.0	3.4	2.0	2.817	0.110	2.0	2.0
FISHER CREEK U/S WILLOW SPRINGS CONF	369.50	3.2	20.0	3.5	2.0	2.793	0.111	2.0	2.0

EAST ZONE REPORT (FISHER CREEK) TABLE-A5

12/13/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
FISHER CREEK TILTON AVE	383.00	3.2	20.0	4.2	2.0	2.334	0.125	2.0	2.0
FISHER CREEK U/S TILTON AVE	385.00	3.2	20.0	4.0	2.0	2.501	0.120	2.0	2.0
FISHER CREEK HALE/SANTA TERESA TRAN	394.00	3.2	11.2	4.4	2.0	0.521	0.102	2.0	2.0
FISHER CREEK U/S PEBBLES AVE	405.00	3.2	7.8	4.6	2.0	0.236	0.102	2.0	2.0
FISHER CREEK	412.00	3.2	7.8	2.8	2.0	0.285	0.094	2.0	2.0
FISHER CREEK	419.00	3.2	7.8	4.6	2.0	0.236	0.102	2.0	2.0
FISHER CREEK LIMIT OF JURISDICTION	422.00	LIMIT OF DISTRICT			JURISDICTION				

EAST ZONE REPORT (FISHER CREEK) TABLE=A6 1/15/85

CAPACITY/FLOOD SUMMARY

CREEK	LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS		EXIST CONDITIONS			FREQ OF FLOOD (YEAR)	FLOOD DAMAGES	
					1% CFS	10% CFS	Q1% CFS	CAPCTY CFS	N		1% (IN 1000$)	AVG ANN
FISHER CREEK	U/S CONFL WITH COYOTE	0.00	15.78	0.0	4000.	1900.	700.	4280.	.040	137.	0.0	0.0
FISHER CREEK	D/S MONTEREY HWY RCB	1.00	15.78	0.0	4000.	1900.	700.	900.	.015	100.	0.0	0.0
FISHER CREEK	U/S MONTEREY HYW RCB	2.20	15.78	0.0	4000.	1900.	700.	2560.	.030	100.	0.0	0.0
FISHER CREEK	D/S SPRR RCB	3.10	15.78	0.0	4000.	1900.	700.	2000.	.015	100.	0.0	0.0
FISHER CREEK	U/S SPRR RCB	3.50	15.00	0.0	4000.	1900.	2560.	2560.	.030	100.	0.0	0.0
FISHER CREEK	D/S SANTA THERESA RCB	51.00	15.00	0.0	4000.	1900.	2560.	1808.	.015	9.	0.0	0.0
FISHER CREEK	U/S SANTA THERESA RCB	54.50	15.00	0.0	4000.	1900.	2560.	2560.	.030	100.	0.0	0.0
FISHER CREEK	D/S BAILEY AVE	80.00	15.00	0.0	4000.	1900.	2160.	311.	.030	2.	17.1	0.9
FISHER CREEK	"A" CONFL/BAILEY AV RCB	100.88	13.38	0.0	3800.	1700.	2160.	3460.	.015	100.	0.0	0.0
FISHER CREEK	U/S BAILEY AVE RCB	101.69	11.20	0.0	3800.	1700.	1190.	1120.	.030	4.	421.4	18.9
FISHER CREEK	D/S FISHER RD. RCB	143.00	11.20	0.0	3800.	1700.	1190.	420.	.015	2.	6.1	0.3
FISHER CREEK	U/S FISHER RD. RCB	143.60	11.20	0.0	3800.	1700.	1190.	346.	.030	2.	116.3	5.8
FISHER CREEK	U/S LAGUNA DR.	155.00	11.20	0.0	3800.	1700.	1190.	1120.	.030	4.	211.1	9.5
FISHER CREEK	D/S RICHMOND AVE RCB	175.70	11.20	0.0	3800.	1700.	1190.	346.	.015	2.	3.1	0.2
FISHER CREEK	U/S RICHMOND AVE RCB	176.00	8.60	0.0	3800.	1700.	700.	700.	.040	100.	0.0	0.0
FISHER CREEK	D/S KALANA AVE	243.00	6.70	0.0	2100.	950.	1130.	1130.	.035	100.	0.0	0.0

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                                  EAST ZONE REPORT (FISHER CREEK) TABLE-A6                                        1/15/85

        CREEK                                DRAIN    MEAN    DESIGN FLOWS    EXIST CONDITIONS    FREQ OF     FLOOD DAMAGES
          LOCATION               STATION     AREA    ANNUAL     1%     10%     Q1%  CAPCTY   N     FLOOD       1%    AVG ANN
                                             SQ MI   PRECIP    CFS     CFS     CFS   CFS          (YEAR)      (IN 1000$)

    FISHER CREEK
       U/S MIRAMONTE AVE          292.00      2.80     0.0     2100.    950.    710.  710. .028    100.        0.0     0.0

    FISHER CREEK
       CONFL WILLOW SPRINGS CR    369.00      1.60     0.0     2100.    950.    560.  560. .032    100.        0.0     0.0

    FISHER CREEK
       LIMITS OF JURISDICTION     422.00      0.50     LIMIT OF JURISDICTION

     TOTAL AVERAGE ANNUAL DAMAGES ($1000) =      35.
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                    EAST ZONE REPORT (FISHER CREEK) TABLE=A7                                           12/13/84

                                   S U M M A R Y

                    DAMAGES=INSURANCE=FLOODPROOFING=ACQUISITION

        REALESTATE INDEX= 118.0

                                AREA     NUMBER     1%FLOOD     ANNUAL        FLOOD        FLOODPLAIN
        LAND USE               FLOODED     OF       DAMAGES     INSURANCE     PROOFING     ACQUISITION
                                ACRES     BLDGS     (1000$)     (1000$/YR)    (1000$)      (1000$)

          SF RESIDENT              16.       71.       290.         29.5        713.         9330.
          APT RESID                 0.        0.         0.          0.0          0.            0.
          MOBILE HOME               0.        0.         0.          0.0          0.            0.
          COMMERCIAL                0.        0.         0.          0.0          0.            0.
          INDUSTRIAL               15.        1.       383.          3.3        231.         7991.
          SCHLS,PUBLC               0.        0.         0.          0.0          0.            0.
          OPEN IMPRVD             203.        0.        45.          0.0          0.        12649.
          AGRICULTURE             958.        0.        56.          0.0          0.        59682.
          VACLND/S,PND             69.        0.         0.          0.0          0.         4268.

          TOTAL                  1260.       72.       774.         32.8        944.        93920.
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EAST ZONE REPORT (FISHER CREEK) TABLE-A8 12/13/84

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGULATION	DISCOURAGEMENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCTURE	ENLARGE CULVERT
0.00	XXX	XXX										
1.00	XXX	XXX	XXX	XXX	XXX							XXX
2.20	XXX	XXX	XXX	XXX	XXX		XXX					
3.10	XXX	XXX	XXX	XXX	XXX							XXX
3.50	XXX	XXX	XXX	XXX	XXX		XXX					
51.00	XXX	XXX	XXX	XXX	XXX							XXX
54.50	XXX	XXX	XXX	XXX	XXX		XXX					
80.00	XXX	XXX	XXX	XXX	XXX		XXX					
100.00	XXX	XXX	XXX	XXX	XXX							XXX
100.88	XXX	XXX	XXX	XXX	XXX							XXX
101.69	XXX	XXX	XXX	XXX	XXX							XXX
102.00	XXX	XXX	XXX	XXX	XXX		XXX					
111.00	XXX	XXX	XXX	XXX	XXX		XXX					
125.00	XXX	XXX	XXX	XXX	XXX		XXX					
140.00	XXX	XXX	XXX	XXX	XXX		XXX					
143.00	XXX	XXX	XXX	XXX	XXX							XXX
143.60	XXX	XXX	XXX	XXX	XXX							XXX
144.00	XXX	XXX	XXX	XXX	XXX		XXX					
155.00	XXX	XXX	XXX	XXX	XXX		XXX					
160.00	XXX	XXX	XXX	XXX	XXX		XXX					
165.00	XXX	XXX	XXX	XXX	XXX		XXX					
175.70	XXX	XXX	XXX	XXX	XXX							XXX
176.00	XXX	XXX	XXX	XXX	XXX		XXX					
197.00	XXX	XXX	XXX	XXX	XXX		XXX					
200.00	XXX	XXX	XXX	XXX	XXX		XXX					
204.00	XXX	XXX	XXX	XXX	XXX		XXX					
230.00	XXX	XXX	XXX	XXX	XXX		XXX					
232.00	XXX	XXX	XXX	XXX	XXX		XXX					
243.00	XXX	XXX	XXX	XXX	XXX		XXX					
255.00	XXX	XXX	XXX	XXX	XXX		XXX					
256.00	XXX	XXX	XXX	XXX	XXX		XXX					
262.00	XXX	XXX	XXX	XXX	XXX		XXX					
265.00	XXX	XXX	XXX	XXX	XXX		XXX					
280.00	XXX	XXX	XXX	XXX	XXX		XXX					
292.00	XXX	XXX	XXX	XXX	XXX		XXX					
315.00	XXX	XXX	XXX	XXX	XXX		XXX					
325.00	XXX	XXX	XXX	XXX	XXX		XXX					
338.00	XXX	XXX	XXX	XXX	XXX		XXX					
346.00	XXX	XXX	XXX	XXX	XXX		XXX					
349.00	XXX	XXX	XXX	XXX	XXX		XXX					
363.00	XXX	XXX	XXX	XXX	XXX		XXX					
364.00	XXX	XXX	XXX	XXX	XXX		XXX					
369.00	XXX	XXX	XXX	XXX	XXX		XXX					
369.50	XXX	XXX	XXX	XXX	XXX		XXX					
370.00	XXX	XXX	XXX	XXX	XXX		XXX					
380.00	XXX	XXX	XXX	XXX	XXX		XXX					

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	CONST BYPASS	WATERSHED TREATMENT	CONST DAM/ RESERV	INSTALL SEDIMENT BASIN	EMERGENCY PROCEDURE /WARNING	INSUR REGUL MANAG	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
							INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
0,00									XXX		
1,00						XXX			XXX	XXX	
2,20						XXX			XXX	XXX	
3,10						XXX			XXX	XXX	
3,50						XXX			XXX	XXX	
51,00						XXX	XXX		XXX	XXX	XXX
54,50						XXX			XXX	XXX	
80,00						XXX	XXX		XXX	XXX	XXX
100,00						XXX	XXX		XXX	XXX	XXX
100,88						XXX			XXX	XXX	
101,69						XXX	XXX		XXX	XXX	XXX
102,00						XXX	XXX		XXX	XXX	XXX
111,00		XXX		XXX		XXX	XXX		XXX	XXX	XXX
125,00		XXX		XXX		XXX	XXX		XXX	XXX	XXX
140,00						XXX	XXX		XXX	XXX	XXX
143,00						XXX	XXX		XXX	XXX	XXX
143,60						XXX	XXX		XXX	XXX	XXX
144,00						XXX	XXX		XXX	XXX	XXX
155,00						XXX	XXX		XXX	XXX	XXX
160,00						XXX	XXX			XXX	XXX
165,00						XXX	XXX			XXX	XXX
175,70						XXX	XXX			XXX	XXX
176,00						XXX				XXX	
197,00						XXX				XXX	
200,00						XXX				XXX	
204,00						XXX				XXX	
230,00						XXX				XXX	
232,00						XXX				XXX	
243,00		XXX		XXX		XXX				XXX	
255,00						XXX				XXX	
256,00						XXX				XXX	
262,00						XXX				XXX	
265,00						XXX				XXX	
280,00						XXX				XXX	
292,00						XXX				XXX	
315,00						XXX				XXX	
325,00						XXX				XXX	
338,00						XXX				XXX	
346,00						XXX				XXX	
349,00						XXX				XXX	
363,00						XXX				XXX	
364,00						XXX				XXX	
369,00						XXX				XXX	
369,50						XXX				XXX	
370,00						XXX				XXX	
380,00						XXX				XXX	

EAST ZONE REPORT (FISHER CREEK) TABLE=A8 12/13/84

STATION	REGU= LATION	DIS= COURAGE= MENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCT= URE	ENLARGE CULVERT
383.00	XXX	XXX	XXX	XXX	XXX		XXX					
385.00	XXX	XXX	XXX	XXX	XXX		XXX					
394.00	XXX	XXX	XXX	XXX	XXX		XXX					
405.00	XXX	XXX	XXX	XXX	XXX		XXX					
412.00	XXX	XXX	XXX	XXX	XXX		XXX					
419.00	XXX	XXX	XXX	XXX	XXX		XXX					

EAST ZONE REPORT (FISHER CREEK) TABLE=A8 12/13/84

STATION	CONST BYPASS	WATERSHED TREATMENT	CONST DAM/ RESERV	INSTALL SEDIMENT BASIN	EMERGENCY PROCEDURE /WARNING	INSUR REGUL MANAG	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
							INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
383,00						XXX				XXX	
385,00						XXX				XXX	
394,00		XXX		XXX		XXX				XXX	
405,00						XXX				XXX	
412,00						XXX				XXX	
419,00						XXX				XXX	

ELEMENTS (I.E. PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF FISHER CREEK
BETWEEN 422,00 AND 419,00

REGULATION TO PREVENT OCCURANCE OF PROBLEM
DISCOURAGEMENT OF INAPPROPRIATE LAND USES

EAST ZONE REPORT (FISHER CREEK) TABLE-A9 12/13/84
REACH 1 (COYOTE CREEK TO BAILEY AVE)
(STATION 0+00 TO STATION 100+00)
-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	44	$88,000
EARTHWORK				
-Excavate	$2.00	C.Y.	424000	$848,000
STRUCTURAL				
-Culverts	$350.00	C.Y.	680	$238,000
-SUBTOTAL-				$1,174,000
MOBILIZATION (5%)				$58,700
CONSTRUCTION CONTINGENCES (10%)				$117,400
-TOTAL CONSTRUCTION COSTS-				$1,350,100
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$243,018
RIGHT OF WAY	$50,000	ACRE	44	$2,200,000

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $3,793,118

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

EAST ZONE REPORT (FISHER CREEK) TABLE-A9 12/13/84
REACH 2 (BAILEY AVE TO LIMIT OF JURISDICTION)
(STATION 100+00 TO STATION 422+00)
-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	127	$254,000
EARTHWORK		C.Y.		
-Excavate	$2.00	C.Y.	1123747	$2,247,494
STRUCTURAL				
-Culverts	$350.00	C.Y.	2394	$837,900
-SUBTOTAL-				$3,339,394
MOBILIZATION (5%)				$166,970
CONSTRUCTION CONTINGENCES (10%)				$333,939
-TOTAL CONSTRUCTION COSTS-				$3,840,303
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$691,255
RIGHT OF WAY	$50,000	ACRE	127	$6,350,000

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $10,881,558

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

4026

LOWER SILVER CREEK (4026)

Watercourse Inventory

Watershed Description

The Lower Silver Creek watershed comprises approximately 42 square miles. The watercourse is approximately 7.1 miles from the confluence with Coyote Creek to the limit of District jurisdiction. Major tributaries to Lower Silver Creek are Miguelita Creek, North Babb and South Babb Creeks, Flint Creek, Lake Cunningham outfall, Norwood Creek, and Thompson Creek. Lower Silver Creek is located within the City of San Jose, and unincorporated areas of Santa Clara County. Channel characteristics on Lower Silver Creek are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

The habitat quality on Lower Silver Creek is considered low to moderate downstream of Interstate 680, with the upstream reaches having very low quality habitat. A 1,800 foot reach upstream of the confluence with Coyote Creek provides incidental groundwater recharge. A description and a summary of environmental conditions, and multipurpose uses are given in Tables A3 and A4 respectively.

Erosion and Sediment

There are two reaches with observed erosion - greater than one foot on Lower Silver Creek. The first reach begins at the confluence with Coyote Creek and extends upstream to North Marburg Way. The second reach begins at San Antonio Street and extends upstream to Interstate 680. Tractive force analysis indicates that there are potentially erosive velocities from North Marburg Way upstream to the Miguelita Creek confluence, and downstream of Ocala Avenue along Capitol Expressway. It is estimated that an average of 440 tons of material is eroded from the stream banks annually. A summary of observed and potential erosion is given in Table A5.

The U. S. Soil Conservation Service estimates the total average annual sediment yield for Lower Silver Creek at 32,270. The estimated average annual sediment deposition in the watershed is 17,350 tons or about 9,000 cubic yards.

Flood Damage Potential

One Percent Flooding

At the confluence of Norwood and Thompson Creeks with Lower Silver Creek the expected channel flow rate is 3,600 cfs. Due to the constriction at Cunningham Avenue, which is the outlet for Lake Cunningham into Lower Silver Creek, flow overbanks on the west side of the Lake (600 cfs). This spill crosses Capitol Avenue and flows north, flooding the residential area there with water up to one foot deep.

The outflow rate from Lake Cunningham is 2,600 cfs. About midway between Ocala and Cunningham Avenues (Station 240+00), overbanking occurs (600 cfs) on the west side due to channel inadequacy. This spill flows west, crossing Capitol Avenue and combines with the previous spill from Lake Cunningham. The combined spill (1,200 cfs) crosses Story Road and runs down Jackson Avenue toward Lower Silver Creek.

Upstream of Capitol Expressway, the channel flowrate is 3,150 cfs (2,000 cfs remaining in the channel downstream of Ocala Avenue, 340 cfs from South Babb, 180 cfs from South Babb spills, 130 cfs local drainage, and 450 cfs from North Babb). Due to a constriction at Capitol Expressway, there are large spills on both sides of the creek (725 cfs each side). On the south side, the spill reaches Story Road and starts flowing west across Capitol Expressway. It combines with the previous spills from Lower Silver Creek near Ocala Avenue and from Lake Cunningham (1,200 cfs). The combined spill flows north down Jackson Avenue, where about a third of it reenters Lower Silver Creek (350 cfs). The majority of the spill continues northerly down Jackson Avenue, crossing under Interstate 680. The flooding affects mainly residential areas, as well as some commercial property and Boss Elementary School. The depth of flooding varies up to three feet along the east side of Interstate 680.

The north bank spill upstream of Capitol Expressway (725 cfs) crosses Capitol Avenue, and ponds along the east side of Interstate 680 (550 cfs). Thus, all the spill from upstream of Capitol Expressway ultimately ends up west of Interstate 680 and east of

Lower Silver Creek. The area affected by flooding depths of one foot contains single family and commercial residential development, local businesses, and a drive-in theater. The flow separates into three directions: 1) most flows west down Kammerer Avenue, reentering Lower Silver Creek (650 cfs); 2) some crosses Lower Silver Creek from the east side to the west side at East San Antonio Street (200 cfs); and 3) the remaining 500 cfs flows northward toward Alum Rock Avenue. At Alum Rock Avenue most of this last spill flows west, ultimately crossing Lower Silver Creek (350 cfs), with 150 cfs continuing northward toward Miguelita Creek. Flooding depths in this area northeast of the creek are less than one foot. The spill flow crosses Miguelita Creek, ponds and eventually filters toward Upper Penitencia Creek, mingling with spill flow from Upper Penitencia Creek. This flooding innundates a large industrial area between the railroad tracks and King Road, with some ponding depths greater than three feet.

The channel flow rate upstream of King and McKee Roads is 2,700 cfs, which is a combination of 1,700 cfs remaining in the channel downstream of Capitol Expressway, and spill flows that reenter the channel at Jackson Avenue and East San Antonio Street (350 cfs and 650 cfs, respectively). The north bank spill combines with the part of the Capitol Avenue spill that was headed for Miguelita Creek (150 cfs).

The two spill flows that had crossed Lower Silver Creek at East San Antonio and Alum Rock Avenue (200 cfs and 350 cfs, respectively) combine and flow northwest across McKee Road, reentering Lower Silver Creek channel upstream of the confluence with Coyote Creek.

A summary of channel capacities is given in Table A6.

Flood Damages

Damages which would result from a 1% flood on Lower Silver Creek are estimated to be $14.4 million. Average annual damages are approximated at $787,000.

The 1% flood event would flood over 600 homes. 1% flood damages of up to $14.0 million could occur, because of the inadequate channel capacity, along the reach between Ocala Avenue and Capitol Expressway.

A breakdown of average annual damage by reach and 1% flood damage is given in Tables A6 and A7 respectively. Note that Table A7 includes floodwaters of less than one foot.

Remedial Meaures

Flood Control Elements

Remedial measures proposed to provide 1% flood capacity on Lower Silver Creek are described below. These measures reflect the Lower Silver Creek Watershed Plan completed in 1983 by the U.S. Soil Conservation Service. The Soil Conservation Service's involvement with Lower Silver Creek is discussed in the section entitled "Funding Analysis". A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

1. Coyote Creek Confluence to Miguelita Creek - This reach would have upstream and downstream sections of trapezoidal earth channel with the middle section, which crosses U. S. 101 and Western Pacific Railroad, being a trapezoidal concrete channel. A grouted rock drop structure and 740 feet of levees would be constructed at the confluence with Coyote Creek. (Two commercial buildings on Lenfest Avenue are proposed to be floodproofed.)
2. Miguelita Creek Confluence to McKee Road - A rectangular concrete channel is proposed for this reach.
3. McKee Road to Interstate 680 - A trapezoidal earth channel is proposed for the reaches along Plato Arroyo Park and Mayfair Park. The entire reach between Plato Arroyo Park and Mayfair Park would be trapezoidal concrete channel with floodwalls added to the already existing sections of trapezoidal concrete channel. A pedestrian footbridge would be added at Kammerer Avenue. It is proposed that an 8x13 RCB would be added to the existing 25x13 RCB at Alum Rock Avenue.
4. Interstate 680 to Cunningham Avenue - A trapezoidal concrete channel is proposed for this reach. There would be a section of rectangular concrete channel

from Interstate 680 and Jackson Avenue, and at the confluence with North Babb Creek. A triple RCB would replace the existing double RCB at Jackson Avenue. A 12x12 RCB would be added to the existing 12x12 RCB at Capitol Expressway.

Cost Estimates

The total cost of the flood control elements is estimated at $14.9 million including $1.8 million in non-federal funds. Annual operation and maintenance costs are estimated at $65,000. These costs are based on the Soil Conservation Service Lower Silver Creek Watershed plan. Table A9 gives a summary of the construction costs for flood control elements proposed on Lower Silver Creek.

Funding

The District along with the Evergreen Resource Conservation District applied for federal assistance under the Watershed Protection and Flood Prevention Act of 1954 (P. L. 566) in February 1979. The Soil Conservation Service completed the Lower Silver Creek Watershed Plan and Environmental Impact Report in July 1983. The cost of the project is $14.3 million including $1.8 million of non-federal funds. The plan is still in Congressional Committee for approval. Table A10 illustrates how potential for P. L. 566 funding was identified for Lower Silver Creek.

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A1

12/13/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
LOWER SILVER CREEK	CONFL.W/ COYOTE CR	0.00	22.0	2.0	3300.	0.030	EXCAVATED EARTH	10/56
LOWER SILVER CREEK	D/S WOOSTER ST	10.00	25.0	1.5	3300.	0.030	EXCAVATED EARTH	10/56
LOWER SILVER CREEK	U/S N. MARBURG WAY	23.50	20.0	2.2	3300.	0.030	EXCAVATED EARTH	10/56
LOWER SILVER CREEK	CONFL.W/ MIGUELITA CR	38.50	20.0	1.6	2700.	0.030	EXCAVATED EARTH	10/56
LOWER SILVER CREEK	U/S MIGUELITA CR CONFL	39.00	7.0	1.0	2700.	0.030	EXCAVATED EARTH	10/56
LOWER SILVER CREEK	D/S MCKEE RD RCB	52.00	20.0	9.5	2400.	0.015	BOX CULVERT	10/56
LOWER SILVER CREEK	U/S MCKEE RD RCB	53.40	15.0	1.5	2400.	0.030	EXCAVATED EARTH	6/58
LOWER SILVER CREEK	D/S ALUM ROCK AVE	80.00	20.0	1.0	2400.	0.015	TRAPEZOIDAL CONCRETE	6/58
LOWER SILVER CREEK	D/S ALUM ROCK AVE RCB	87.00	25.0	13.0	2700.	0.015	BOX CULVERT	6/58
LOWER SILVER CREEK	U/S ALUM ROCK AVE RCB	88.00	20.0	0.8	2700.	0.015	TRAPEZOIDAL CONCRETE	6/58
LOWER SILVER CREEK	D/S SUNSET RCB	93.00	22.0	12.0	2700.	0.015	BOX CULVERT	0/ 0
LOWER SILVER CREEK	U/S SUNSET RCB	93.70	20.0	0.8	2700.	0.015	TRAPEZOIDAL CONCRETE	0/ 0
LOWER SILVER CREEK	D/S SAN ANTONIO ST.	102.00	11.0	1.5	2700.	0.035	ROCK LINED - SIDES ONLY	6/58
LOWER SILVER CREEK	D/S SAN ANTONIO ST. RCB	103.50	20.0	10.0	2700.	0.015	BOX CULVERT	0/ 0
LOWER SILVER CREEK	U/S SAN ANTONIO ST. RCB	104.10	15.0	1.5	2700.	0.030	EXCAVATED EARTH	6/58
LOWER SILVER CREEK	D/S KAMMERER ST. RCB	113.50	20.0	10.0	2700.	0.015	BOX CULVERT	0/ 0
LOWER SILVER CREEK	U/S KAMMERER ST. RCB	114.10	11.0	1.5	2700.	0.030	EXCAVATED EARTH	0/ 0
LOWER SILVER CREEK	D/S HWY 680 RCB	123.80	42.0	13.0	2700.	0.015	BOX CULVERT	6/58
LOWER SILVER CREEK	U/S HWY 680 RCB	127.40	20.0	1.0	2050.	0.015	TRAPEZOIDAL CONCRETE	12/77
LOWER SILVER CREEK	D/S JACKSON AVE RCB	130.00	30.0	9.0	2050.	0.015	BOX CULVERT	12/77
LOWER SILVER CREEK	U/S JACKSON AVE RCB	131.00	18.0	1.5	2050.	0.030	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	U/S PETER PAN AVE	138.50	10.0	1.5	2050.	0.030	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	D/S GALAHAD AVE	143.00	5.0	1.0	2050.	0.030	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	U/S GALAHAD AVE	149.00	5.0	1.0	2050.	0.030	EXCAVATED EARTH	12/77

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A1

12/13/84

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
LOWER SILVER CREEK	D/S CAPITOL EXPWY RCB	155.00	24.0	12.0	2050.	0.015	BOX CULVERT	12/77
LOWER SILVER CREEK	U/S CAPITOL EXPWY RCB	157.20	10.0	1.5	2050.	0.030	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	DOVER WAY	158.50	10.0	2.3	2050.	0.030	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	D/S HARMONT WAY	163.00	10.0	2.3	2050.	0.030	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	CONFL.W/ NORTH BABB CR	170.00	10.0	2.3	1700.	0.030	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	U/S NORTH BABB CR CONFL	172.00	10.0	2.2	1700.	0.030	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	D/S STORY RD.	180.55	36.0	10.0	1700.	0.015	BOX CULVERT	11/74
LOWER SILVER CREEK	U/S STORY RD	183.00	18.0	1.5	2700.	0.040	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	U/S CHILTERN WY	193.00	18.0	1.5	2700.	0.040	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	D/S MURTHA	199.13	40.0	1.0	2700.	0.015	TRAPEZOIDAL CONCRETE	0/ 0
LOWER SILVER CREEK	U/S MURTHA	199.63	20.0	1.5	2700.	0.040	EXCAVATED EARTH	0/ 0
LOWER SILVER CREEK	CONFL.W/ SOUTH BABB CK	202.50	20.0	1.4	2000.	0.040	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	U/S SOUTH BABB CR CONFL	203.00	20.0	1.4	2000.	0.040	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	D/S MOSS POINT	217.40	36.0	12.0	2400.	0.015	BOX CULVERT	12/77
LOWER SILVER CREEK	U/S MOSS POINT	218.00	20.0	1.5	2700.	0.045	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	ROGERS SCHOOL	223.00	20.0	1.5	2700.	0.045	EXCAVATED EARTH	12/77
LOWER SILVER CREEK	D/S OCALA AVE. RCB	231.00	22.0	6.0	2700.	0.015	BOX CULVERT	12/77
LOWER SILVER CREEK	U/S OCALA AVE. RCB	231.80	20.0	1.5	2700.	0.045	EXCAVATED EARTH	0/ 0
LOWER SILVER CREEK	D/S CUNNINGHAM AVE RCB	245.00	22.0	6.0	2580.	0.013	BOX CULVERT	6/79
LOWER SILVER CREEK	U/S CUNNINGHAM AVE RCB	245.80	30.0	2.5	2580.	0.030	EXCAVATED EARTH	0/ 0
LOWER SILVER CREEK	D/S TULLY RD RCB	290.00	74.0	12.0	2970.	0.015	BOX CULVERT	0/ 0
LOWER SILVER CREEK	U/S TULLY RD RCB	292.50	95.0	2.0	2970.	0.030	EXCAVATED EARTH	6/79
LOWER SILVER CREEK	CONFL.W/ THOMPSON CK	316.70	6.5	0.0	200.	0.015	PIPE	1/79
LOWER SILVER CREEK	BARBERRY LN	366.50	8.0	2.3	200.	0.030	EXCAVATED EARTH	1/79
LOWER SILVER CREEK	LIMIT OF JURISDICTION	377.50	LIMIT OF JURISDICTION					

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                    EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A2                                 12/13/84


                                   SUMMARY OF CHANNEL TYPES



                    THERE ARE      0.94  MILES OF   PIPE

                    THERE ARE      0.35  MILES OF   BOX CULVERT

                    THERE ARE      0.44  MILES OF   TRAPEZOIDAL CONCRETE

                    THERE ARE      0.03  MILES OF   ROCK LINED - SIDES ONLY

                    THERE ARE      5.39  MILES OF   EXCAVATED  EARTH



                    TOTAL          7.15  MILES
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CHANNEL ENVIRONMENTAL CONDITIONS

			HABITAT TYPE								MULTIPURPOSES	
CREEK	LOCATION	STATION	NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOODLAND	RIPARIAN	VEGETATIVE QUANTITY	HABITAT QUALITY	GW RECHG	RECREATION
LOWER SILVER CREEK	COYOTE CREEK CONF	0.00		X				X	MODERATE	MODERATE	X	
DOMINANT SPECIES: WILLOWS, CATTAIL, BLACK WALNUT, BULRUSH, CURLY DOCK												
LOWER SILVER CREEK	HWY 101	18.00		X				X	SPARSE	LOW		
DOMINANT SPECIES: WILLOWS, COTTONWOOD, CATTAIL, SMARTWEED, BOXELDER												
LOWER SILVER CREEK	KING ROAD	40.00		X				X	SPARSE	LOW		
DOMINANT SPECIES: WILLOWS, BLACK WALNUT, CATTAIL, SALTBUSH, CURLY DOCK												
LOWER SILVER CREEK	PARALLEL KING ROAD	52.00	X						NONE	VERY LOW		
LOWER SILVER CREEK	PARK @ KING+MCKEE	53.00		X					SPARSE	MODERATE		
DOMINANT SPECIES: CATTAIL, BULRUSH, SPIKE RUSH												
LOWER SILVER CREEK	THRU PARK U/S KING	65.00		X				X	SPARSE	MODERATE		
DOMINANT SPECIES: COTTONWOOD, CURLY DOCK, BLACK WALNUT, CATTAIL												
LOWER SILVER CREEK	TROPICAIRE DRIVEIN	80.00		X					SPARSE	VERY LOW		
DOMINANT SPECIES: CATTAIL, BULRUSH, COCKLEBUR												
LOWER SILVER CREEK	SAN ANTONIO STREET	103.00		X				X	SPARSE	MODERATE		
DOMINANT SPECIES: COTTONWOOD, WILLOWS, BLACK WALNUT, CATTAIL, CURLY DOCK												
LOWER SILVER CREEK	D/S FREEWAY 680	123.80	X						NONE	VERY LOW		
LOWER SILVER CREEK	U/S FREEWAY 680	127.40		X					SPARSE	LOW		
DOMINANT SPECIES: CATTAIL, SEDGES, COCKLEBUR												
LOWER SILVER CREEK	D/S JACKSON AVE	129.50	X						NONE	VERY LOW		
LOWER SILVER CREEK	U/S JACKSON AVE	130.50		X				X	MODERATE	MODERATE		
DOMINANT SPECIES: BOXELDER, WILLOWS, ELDERBERRY, CATTAIL, SEDGES, RUSHES, BLACKBERRY												
LOWER SILVER CREEK	D/S CAPITOL EXPWY	154.00	X						NONE	VERY LOW		
LOWER SILVER CREEK	U/S CAPITOL EXPWY	156.00		X				X	SPARSE	LOW		
DOMINANT SPECIES: COTTONWOOD, POPLAR, BLACK WALNUT, POISON OAK, ELDERBERRY, CATTAIL, BULRUSH												
LOWER SILVER CREEK	D/S STORY ROAD	180.00	X						NONE	VERY LOW		
LOWER SILVER CREEK	U/S STORY ROAD	182.00		X				X	SPARSE	MODERATE		
DOMINANT SPECIES: WILLOWS, COTTONWOOD, BLACK WALNUT, CATTAIL, COCKLEBUR, TULE, SEDGES												

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE=A3 12/13/84

			HABITAT TYPE								MULTIPURPOSES	
CREEK	LOCATION	STATION	NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOODLAND	RIPARIAN	VEGETATIVE QUANTITY	HABITAT QUALITY	GW RECHG	RECREATION
LOWER SILVER CREEK	CUNNINGHAM AVENUE	244.00	X						NONE	VERY LOW		
LOWER SILVER CREEK	U/S END CONC PIPE	368.00				X			SPARSE	VERY LOW		
LOWER SILVER CREEK	KING ROAD	377.50	LIMITS OF JURISDICTION									

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                  EAST ZONE REPORT (LOWER SILVER CREEK) TABLE=A4                          12/13/84

                   SUMMARY OF CHANNEL ENVIRONMENTAL CONDITIONS


              THIS SUMMARY INCLUDES A TOTAL OF      7.15  MILES  OF CHANNEL.

              HABITAT TYPES:

                   THERE ARE      2.53  MILES OF NO SIGNIFICANT HABITAT

                   THERE ARE      4.44  MILES OF FRESHWATER MARSH

                   THERE ARE      0.18  MILES OF GRASSLAND HABITAT

                   THERE ARE      3.74  MILES OF RIPARIAN HABITAT

              QUANTITY OF VEGETATION:

                   THERE ARE      2.53  MILES WITH NO VEGETATION

                   THERE ARE      3.83  MILES WITH SPARSE VEGETATION

                   THERE ARE      0.79  MILES WITH MODERATE VEGETATION

                   THERE ARE      3.15  MILES WITH VERY LOW QUALITY HABITAT

                   THERE ARE      1.14  MILES WITH LOW QUALITY HABITAT

                   THERE ARE      2.87  MILES WITH MODERATE QUALITY HABITAT

              THERE ARE      0.34  MILES WHICH PROVIDE GROUNDWATER RECHARGE
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EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A5 12/13/84

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOWABLE VELOCITY ALLOW FT/SEC	ALLOWABLE VELOCITY CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	TRACTIVE FORCE ALLOW LB/SF	TRACTIVE FORCE CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
LOWER SILVER CREEK CONFL.W/ COYOTE CR	0.00	3.3	2.4	5.6	1.0	0.007	0.096	1.0	1.0
LOWER SILVER CREEK D/S WOOSTER ST	10.00	3.3	5.8	5.2	2.0	0.043	0.091	1.0	3.2
LOWER SILVER CREEK U/S N. MARBURG WAY	23.50	3.3	7.2	5.0	2.0	0.092	0.088	2.0	3.2
LOWER SILVER CREEK CONFL.W/ MIGUELITA CR	38.50	3.2	6.5	7.0	1.0	0.057	0.126	1.0	1.0
LOWER SILVER CREEK U/S MIGUELITA CR CONFL	39.00	3.2	14.0	6.9	2.0	0.310	0.150	2.0	2.0
LOWER SILVER CREEK D/S MCKEE RD RCB	52.00				NON-ERODING REACH				
LOWER SILVER CREEK U/S MCKEE RD RCB	53.40	3.2	6.3	7.0	1.0	0.055	0.133	1.0	1.0
LOWER SILVER CREEK D/S ALUM ROCK AVE	80.00				NON-ERODING REACH				
LOWER SILVER CREEK D/S ALUM ROCK AVE RCB	87.00				NON-ERODING REACH				
LOWER SILVER CREEK U/S ALUM ROCK AVE RCB	88.00				NON-ERODING REACH				
LOWER SILVER CREEK D/S SUNSET RCB	93.00				NON-ERODING REACH				
LOWER SILVER CREEK U/S SUNSET RCB	93.70				NON-ERODING REACH				
LOWER SILVER CREEK D/S SAN ANTONIO ST.	102.00				NON-ERODING REACH				
LOWER SILVER CREEK D/S SAN ANTONIO ST. RCB	103.50				NON-ERODING REACH				
LOWER SILVER CREEK U/S SAN ANTONIO ST. RCB	104.10	3.3	6.3	8.1	1.0	0.054	0.134	1.0	1.0
LOWER SILVER CREEK D/S KAMMERER ST. RCB	113.50				NON-ERODING REACH				

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A5

12/13/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	 ALLOW FT/SEC	 CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	 ALLOW LB/SF	 CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
LOWER SILVER CREEK U/S KAMMERER ST. RCB	114.10	3.0	5.6	9.0	1.0	0.044	0.141	1.0	1.0
LOWER SILVER CREEK D/S HWY 680 RCB	123.80				NON-ERODING REACH				
LOWER SILVER CREEK U/S HWY 680 RCB	127.40				NON-ERODING REACH				
LOWER SILVER CREEK D/S JACKSON AVE RCB	130.00				NON-ERODING REACH				
LOWER SILVER CREEK U/S JACKSON AVE RCB	131.00	3.2	5.8	6.9	1.0	0.046	0.128	1.0	1.0
LOWER SILVER CREEK U/S PETER PAN AVE	138.50	3.2	13.1	4.7	2.0	0.276	0.095	2.0	2.0
LOWER SILVER CREEK D/S GALAHAD AVE	143.00	3.2	13.9	5.0	2.0	0.322	0.112	2.0	2.0
LOWER SILVER CREEK U/S GALAHAD AVE	149.00	3.2	13.7	2.6	2.0	0.680	0.054	2.0	2.0
LOWER SILVER CREEK D/S CAPITOL EXPWY RCB	155.00				NON-ERODING REACH				
LOWER SILVER CREEK U/S CAPITOL EXPWY RCB	157.20	3.2	5.2	3.9	2.0	0.088	0.048	2.0	2.0
LOWER SILVER CREEK DOVER WAY	158.50	3.2	4.1	7.4	1.0	0.026	0.095	1.0	1.0
LOWER SILVER CREEK D/S MARMONT WAY	163.00	3.2	3.8	10.3	1.0	0.022	0.133	1.0	1.0
LOWER SILVER CREEK CONFL.W/ NORTH BABB CR	170.00	3.2	3.3	10.1	1.0	0.017	0.134	1.0	1.0
LOWER SILVER CREEK U/S NORTH BABB CR CONFL	172.00	3.2	3.6	10.0	1.0	0.020	0.134	1.0	1.0
LOWER SILVER CREEK D/S STORY RD.	180.55				NON-ERODING REACH				
LOWER SILVER CREEK U/S STORY RD	183.00	3.2	4.8	9.5	1.0	0.032	0.128	1.0	1.0
LOWER SILVER CREEK U/S CHILTERN WY	193.00	3.2	5.3	6.8	1.0	0.039	0.091	1.0	1.0

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A5 12/13/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOWABLE VELOCITY ALLOW FT/SEC	ALLOWABLE VELOCITY CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	TRACTIVE FORCE ALLOW LB/SF	TRACTIVE FORCE CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
LOWER SILVER CREEK D/S MURTHA	199.13				NON-ERODING REACH				
LOWER SILVER CREEK U/S MURTHA	199.63	3.2	4.7	6.9	1.0	0.030	0.091	1.0	1.0
LOWER SILVER CREEK CONFL.W/ SOUTH BABB CK	202.50	3.2	4.4	6.7	1.0	0.025	0.093	1.0	1.0
LOWER SILVER CREEK U/S SOUTH BABB CR CONFL	203.00	3.2	4.4	6.7	1.0	0.025	0.093	1.0	1.0
LOWER SILVER CREEK D/S MOSS POINT	217.40				NON-ERODING REACH				
LOWER SILVER CREEK U/S MOSS POINT	218.00	3.2	5.8	5.9	1.0	0.045	0.091	1.0	1.0
LOWER SILVER CREEK ROGERS SCHOOL	223.00	3.2	5.8	3.1	2.0	0.101	0.044	2.0	2.0
LOWER SILVER CREEK D/S OCALA AVE. RCB	231.00				NON-ERODING REACH				
LOWER SILVER CREEK U/S OCALA AVE. RCB	231.80	****	5.1	1.4	2.0	0.074	0.044	2.0	3.2
LOWER SILVER CREEK D/S CUNNINGHAM AVE RCB	245.00				NON-ERODING REACH				
LOWER SILVER CREEK U/S CUNNINGHAM AVE RCB	245.80	3.1	3.4	5.2	1.0	0.020	0.085	1.0	1.0
LOWER SILVER CREEK D/S TULLY RD RCB	290.00				NON-ERODING REACH				
LOWER SILVER CREEK U/S TULLY RD RCB	292.50	3.1	3.5	4.8	1.0	0.016	0.081	1.0	1.0
LOWER SILVER CREEK CONFL.W/ THOMPSON CK	316.70				NON-ERODING REACH				
LOWER SILVER CREEK BARBERRY LN	366.50	3.1	0.6	5.0	1.0	0.001	0.098	1.0	1.0
LOWER SILVER CREEK LIMIT OF JURISDICTION	377.50	LIMIT OF DISTRICT			JURISDICTION				

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS 1% CFS	 10% CFS	EXIST CONDITIONS Q1% CFS	 CAPCTY CFS	 N	FREQ OF FLOOD (YEAR)	FLOOD DAMAGES 1% (IN 1000$)	 AVG ANN
LOWER SILVER CREEK U/S CONFL WITH COYOTE	0.00	43.50	0.0	5500.	3500.	3300.	7200.	.030	1000.	0.0	0.0
LOWER SILVER CREEK D/S MIGUELITA CREEK	38.50	40.64	0.0	5200.	3400.	2700.	8130.	.030	1000.	0.0	0.0
LOWER SILVER CREEK D/S KING-MCKEE RBC	52.00	36.20	0.0	4700.	3000.	2400.	2400.	.015	100.	0.0	0.0
LOWER SILVER CREEK U/S MCKEE RD. RBC	53.40	36.20	0.0	4700.	3000.	2400.	2975.	.030	100.	5931.8	59.3
LOWER SILVER CREEK D/S ALUM ROCK AVE.	80.00	36.20	0.0	4700.	3000.	2400.	8350.	.015	1000.	1561.0	7.4
LOWER SILVER CREEK D/S ALUM ROCK AVE RCB	87.00	36.19	0.0	4700.	3000.	2700.	3648.	.015	100.	0.0	0.0
LOWER SILVER CREEK U/S ALUM ROCK AVE RCB	88.00	36.15	0.0	4700.	3000.	2700.	6690.	.015	1000.	0.0	0.0
LOWER SILVER CREEK D/S SUNSET AVE RCB	93.00	36.15	0.0	4700.	3000.	2700.	4046.	.015	100.	0.0	0.0
LOWER SILVER CREEK U/S SUNSET AVE RCB	93.70	36.15	0.0	4700.	3000.	2700.	6690.	.015	1000.	0.0	0.0
LOWER SILVER CREEK D/S SAN ANTONIO ST	102.00	36.15	0.0	4700.	3000.	2700.	2660.	.035	6.	0.0	0.0
LOWER SILVER CREEK D/S SAN ANTONIO ST RCB	103.50	35.19	0.0	4600.	3000.	2700.	2700.	.015	100.	0.0	0.0
LOWER SILVER CREEK U/S SAN ANTONIO ST. RCB	104.10	35.19	0.0	4600.	3000.	2700.	2660.	.030	6.	0.0	0.0
LOWER SILVER CREEK D/S KAMMERER AVE. RCB	113.50	35.19	0.0	4600.	3000.	2700.	1600.	.015	2.	0.0	0.0
LOWER SILVER CREEK U/S KAMMERER AVE. RCB	114.10	35.19	0.0	4600.	3000.	2700.	2370.	.030	4.	0.0	0.0
LOWER SILVER CREEK D/S HWY 680 RCB	123.80	35.19	0.0	4600.	3000.	2700.	2805.	.015	100.	0.0	0.0
LOWER SILVER CREEK U/S FWY 680 RCB	127.40	35.19	0.0	4600.	3000.	2050.	5670.	.015	843.	0.0	0.0

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE=A6 1/15/85

CREEK		DRAIN	MEAN	DESIGN FLOWS		EXIST CONDITIONS			FREQ OF	FLOOD DAMAGES	
LOCATION	STATION	AREA SQ MI	ANNUAL PRECIP	1% CFS	10% CFS	Q1% CFS	CAPCTY CFS	N	FLOOD (YEAR)	1%	AVG ANN (IN 1000$)
LOWER SILVER CREEK D/S JACKSON ST. RCB	130.00	35.19	0.0	4600.	3000.	2050.	3000.	.015	100.	0.0	0.0
LOWER SILVER CREEK U/S JACKSON ST. RCB	131.00	35.19	0.0	4600.	3000.	2050.	3375.	.030	100.	0.0	0.0
LOWER SILVER CREEK D/S CAPITOL EXPWY. RBC	155.00	35.19	0.0	4600.	3000.	2050.	1700.	.015	2.	0.0	0.0
LOWER SILVER CREEK U/S CAPITOL EXPWY. RBC	157.20	35.19	0.0	4600.	3000.	2050.	1480.	.030	2.	1212.2	60.3
LOWER SILVER CREEK D/S N.BABB CONFL	170.00	33.68	0.0	4500.	2800.	1700.	1500.	.030	2.	999.1	48.5
LOWER SILVER CREEK D/S STORY RD. RBC	180.55	33.68	0.0	4500.	2800.	1700.	3826.	.015	100.	232.0	2.3
LOWER SILVER CREEK U/S STORY RD. RBC	183.00	33.68	0.0	4500.	2800.	2700.	1700.	.040	3.	1527.5	72.7
LOWER SILVER CREEK D/S MURTHA	199.13	33.68	0.0	4500.	2800.	2700.	2000.	.015	4.	47.4	2.2
LOWER SILVER CREEK U/S MURTHA	199.63	33.68	0.0	4500.	2800.	2700.	1700.	.040	3.	271.8	12.9
LOWER SILVER CREEK SOUTH BABB CR CONFL	202.50	31.11	0.0	4200.	2600.	2000.	1800.	.040	3.	1411.0	65.5
LOWER SILVER CREEK D/S MOSS POINT DR. RBC	217.40	31.11	0.0	4200.	2600.	2400.	3691.	.015	100.	56.8	0.6
LOWER SILVER CREEK U/S MOSS POINT DR. RBC	218.00	31.11	0.0	4200.	2600.	2700.	2220.	.045	6.	1621.4	66.4
LOWER SILVER CREEK D/S OCALA AVE RCB	231.00	27.11	0.0	3900.	2400.	2700.	3916.	.015	103.	388.0	3.8
LOWER SILVER CREEK U/S OCALA AVE RCB	231.80	27.11	0.0	3900.	2400.	2700.	2220.	.045	8.	6402.0	236.6
LOWER SILVER CREEK D/S CUNNINGHAM AVE RCB	245.00	26.23	0.0	3800.	2300.	3000.	3000.	.013	100.	0.0	0.0
LOWER SILVER CREEK U/S CUNNINGHAM AVE RCB	245.80	26.23	0.0	3800.	2300.	3000.	3000.	.030	100.	0.0	0.0
LOWER SILVER CREEK D/S TULLY RD. RCB	290.00	26.23	0.0	5100.	3200.	3600.	3000.	.015	8.	0.0	0.0

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE=A6 1/15/85

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS 1% CFS	10% CFS	EXIST CONDITIONS Q1% CFS	CAPCTY CFS	N	FREQ OF FLOOD (YEAR)	FLOOD DAMAGES 1%	AVG ANN (IN 1000$)
LOWER SILVER CREEK U/S TULLY RD. RCB	292.50	26.23	0.0	5100.	3200.	3600.	3000.	.030	8.	24.0	0.9
LOWER SILVER CREEK NORWOOD CRK. CONFL.	315.40	26.23	0.0	5100.	3200.	3600.	3000.	.030	8.	0.0	0.0
LOWER SILVER CREEK THOMPSON CRK. CONFL.	316.70	22.05	0.0	200.	190.	200.	255.	.015	1000.	0.0	0.0
LOWER SILVER CREEK U/S CONFL THOMPSON CRK.	316.80	1.88	0.0	200.	190.	200.	255.	.015	1000.	0.0	0.0
LOWER SILVER CREEK NR BARBERRY LN	366.50	1.88	0.0	200.	190.	200.	200.	.030	100.	0.0	0.0
LOWER SILVER CREEK LIMITS OF JURISDICTION	377.50	0.50	LIMIT OF JURISDICTION								

TOTAL AVERAGE ANNUAL DAMAGES ($1000) = 639.

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE=A7 12/13/84

S U M M A R Y

DAMAGES=INSURANCE=FLOODPROOFING=ACQUISITION

REALESTATE INDEX= 118.0

LAND USE	AREA FLOODED ACRES	NUMBER OF BLDGS	1%FLOOD DAMAGES (1000$)	ANNUAL INSURANCE (1000$/YR)	FLOOD PROOFING (1000$)	FLOODPLAIN ACQUISITION (1000$)
SF RESIDENT	563.	2591.	7692.	1077.4	25912.	340742.
APT RESID	62.	431.	1098.	151.6	507.	57135.
MOBILE HOME	0.	0.	0.	0.0	0.	0.
COMMERCIAL	83.	50.	987.	224.0	1146.	63625.
INDUSTRIAL	144.	57.	4474.	175.8	921.	75210.
SCHLS.PUBLC	28.	9.	495.	26.9	484.	18264.
OPEN IMPRVD	94.	0.	21.	0.0	0.	14753.
AGRICULTURE	302.	0.	19.	0.0	0.	48006.
VACLND/S.PND	126.	0.	0.	0.0	0.	19550.
TOTAL	1402.	3137.	14785.	1655.6	28971.	637286.

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A8 12/13/84

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGULATION	DISCOURAGEMENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCTURE	ENLARGE CULVERT
0.00	XXX	XXX										
10.00	XXX	XXX										
18.00	XXX	XXX										
23.50	XXX	XXX										
38.50	XXX	XXX										
39.00	XXX	XXX										
40.00	XXX	XXX										
52.00	XXX	XXX	XXX	XXX	XXX							XXX
53.00	XXX	XXX	XXX	XXX	XXX							XXX
53.40	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
65.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
80.00	XXX	XXX										
87.00	XXX	XXX	XXX	XXX	XXX							XXX
88.00	XXX	XXX										
93.00	XXX	XXX	XXX	XXX	XXX							XXX
93.70	XXX	XXX										
102.00	XXX	XXX	XXX	XXX	XXX		XXX					
103.00	XXX	XXX	XXX	XXX	XXX		XXX					
103.50	XXX	XXX	XXX	XXX	XXX							XXX
104.10	XXX	XXX	XXX	XXX	XXX		XXX					
113.50	XXX	XXX	XXX	XXX	XXX							XXX
114.10	XXX	XXX	XXX	XXX	XXX		XXX					
123.80	XXX	XXX	XXX	XXX	XXX							XXX
127.40	XXX	XXX										
129.50	XXX	XXX										
130.00	XXX	XXX	XXX	XXX	XXX							XXX
130.50	XXX	XXX	XXX	XXX	XXX							XXX
131.00	XXX	XXX	XXX	XXX	XXX		XXX					
138.50	XXX	XXX	XXX	XXX	XXX		XXX					
143.00	XXX	XXX	XXX	XXX	XXX		XXX					
149.00	XXX	XXX	XXX	XXX	XXX		XXX					
154.00	XXX	XXX	XXX	XXX	XXX		XXX					
155.00	XXX	XXX	XXX	XXX	XXX							XXX
156.00	XXX	XXX	XXX	XXX	XXX							XXX
157.20	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
158.50	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
163.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
170.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
172.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
180.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
180.55	XXX	XXX	XXX	XXX	XXX	XXX						XXX
182.00	XXX	XXX	XXX	XXX	XXX	XXX						XXX
183.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
193.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
199.13	XXX	XXX	XXX	XXX	XXX	XXX						
199.63	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE=A8 12/13/84

S U M M A R Y

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	CONST BYPASS	WATERSHED TREATMENT	CONST DAM/ RESERV	INSTALL SEDIMENT BASIN	EMERGENCY PROCEDURE /WARNING	INSUR REGUL MANAG	**DOWNSTREAM CONFLICTS*** INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	**CAPACITY < ** DESIGN Q1%	EXIST Q1%
0,00											
10,00											
18,00											
23,50											
38,50											
39,00											
40,00											
52,00						XXX				XXX	
53,00						XXX				XXX	
53,40					XXX	XXX				XXX	
65,00					XXX	XXX				XXX	
80,00											
87,00		XXX		XXX		XXX				XXX	
88,00											
93,00		XXX		XXX		XXX				XXX	
93,70											
102,00						XXX	XXX			XXX	XXX
103,00						XXX	XXX			XXX	XXX
103,50						XXX				XXX	
104,10						XXX	XXX			XXX	XXX
113,50						XXX	XXX			XXX	XXX
114,10						XXX	XXX			XXX	XXX
123,80						XXX				XXX	
127,40											
129,50											
130,00						XXX				XXX	
130,50						XXX				XXX	
131,00						XXX				XXX	
138,50						XXX				XXX	
143,00						XXX				XXX	
149,00						XXX				XXX	
154,00						XXX				XXX	
155,00						XXX	XXX			XXX	XXX
156,00						XXX	XXX			XXX	XXX
157,20			XXX		XXX	XXX	XXX			XXX	XXX
158,50			XXX		XXX	XXX	XXX			XXX	XXX
163,00			XXX		XXX	XXX	XXX			XXX	XXX
170,00			XXX		XXX	XXX	XXX			XXX	XXX
172,00			XXX		XXX	XXX	XXX			XXX	XXX
180,00			XXX		XXX	XXX	XXX			XXX	XXX
180,55			XXX		XXX	XXX				XXX	
182,00			XXX		XXX	XXX				XXX	
183,00			XXX		XXX	XXX	XXX			XXX	XXX
193,00		XXX	XXX	XXX	XXX	XXX	XXX			XXX	XXX
199,13		XXX	XXX	XXX	XXX	XXX	XXX			XXX	XXX
199,63			XXX		XXX	XXX	XXX			XXX	XXX

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A8 12/13/84

STATION	REGU-LATION	DIS-COURAGE-MENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCT-URE	ENLARGE CULVERT
202.50	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
203.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
217.40	XXX	XXX	XXX	XXX	XXX	XXX						XXX
218.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
223.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
230.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
231.00	XXX	XXX										
231.80	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
244.00	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX				
245.00	XXX	XXX	XXX	XXX	XXX							XXX
245.80	XXX	XXX	XXX	XXX	XXX		XXX					
290.00	XXX	XXX										
292.50	XXX	XXX										
315.40	XXX	XXX										
316.70	XXX	XXX										
316.80	XXX	XXX										
366.50	XXX	XXX										
368.00	XXX	XXX										

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE=A8 12/13/84

STATION	CONST	WATERSHED	CONST	INSTALL	EMERGENCY	INSUR	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
	BYPASS	TREATMENT	DAM/ RESERV	SEDIMENT BASIN	PROCEDURE /WARNING	REGUL MANAG	INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
202,50			XXX		XXX	XXX	XXX			XXX	XXX
203,00			XXX		XXX	XXX	XXX			XXX	XXX
217,40			XXX		XXX	XXX				XXX	
218,00			XXX		XXX	XXX	XXX			XXX	XXX
223,00			XXX		XXX	XXX	XXX			XXX	XXX
230,00			XXX		XXX	XXX	XXX			XXX	XXX
231,00											
231,80			XXX		XXX	XXX	XXX			XXX	XXX
244,00			XXX		XXX	XXX	XXX			XXX	XXX
245,00						XXX				XXX	
245,80						XXX				XXX	
290,00											
292,50											
315,40											
316,70											
316,80											
366,50											
368,00											

ELEMENTS (I.E. PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF LOWER SILVER CREEK
BETWEEN 377,50 AND 368,00

REGULATION TO PREVENT OCCURANCE OF PROBLEM
DISCOURAGEMENT OF INAPPROPRIATE LAND USES

EAST ZONE REPORT (LOWER SILVER CREEK) TABLE-A9 12/13/84

-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CHANNEL LINING				
-Trapezoidal Earth		L.F.	4594	
-Trapezoidal Concrete		L.F.	15365	
-U Frame Concrete		L.F.	2482	
-Floodwall		L.F.	2059	
-Levee		L.F.	739	
CULVERTS				
-8X13 RCB		L.F.	120	
-3(14X13) RCB		L.F.	100	
-12X12 RCB		L.F.	275	
MISCELLANEOUS				
-Grouted Drop Structure				
-Relocate Mathson School Facilities				
-Remove Four Abandoned Bridges				
-Pedestrian Bridge				
REVEGETATION		ACRE	6.6	
		-SUBTOTAL-		$10,397,000
LOODPROOFING				$6,000
NGINEERING				$624,000
PROJECT ADMINISTRATION & INSPECTION				$1,196,000
-TOTAL CONSTRUCTION COSTS (SCS,PL-566 FUNDS)-				$12,223,000

STATION	RIGHT OF WAY	PROJECT ADMINISTRATION	AMOUNT
0+50 to 40+50	$398,000	$2,000	$400,000
40+50 to 53+25	$4,000	$1,000	$5,000
53+25 to 123+78	$573,000	$18,000	$591,000
123+78 to 170+00	$635,000	$68,000	$703,000
170+00 to 201+60	$12,000	$1,000	$13,000
201+60 to 244+61	$16,000	$1,000	$17,000
FLOODPROOFING	$1,000	$1,000	$2,000
-TOTAL COSTS (NON-FEDERAL)-			$1,731,000

BASELINE DATE (12/82) INDEX= 4993.34 PROJECT COST = $13,954,000

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $14,313,627

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

UPPER PENITENCIA CREEK (4032)

Watercourse Inventory

Watershed Description

The total Upper Penitencia Creek watershed comprises approximately 24 square miles. Most of the watershed (22 square miles) lies in the east foothills. Upper Penitencia Creek is approximately 11 miles long, and is located within the City of San Jose and unincorporated areas of Santa Clara County. Channel characteristics on Upper Penitencia Creek are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

Upper Penitencia Creek is in a semi-natural state and supports a variety of plant species along its banks. A cooperative agreement exists with the City of San Jose, Santa Clara County and the Santa Clara Valley Water District to provide for the creation of a linear park system adjacent to this creek. Below Noble Avenue, Upper Penitencia Creek is used as a groundwater recharge facility. A description and a summary of environmental conditions and multipurpose uses are given in Tables A3 and A4 respectively.

Erosion and Sediment

Erosion is classified as moderate (one to three feet) along nearly the entire lower reach. No major erosion repair projects have been required on Upper Penitencia Creek. The low levees found along most of the channel below Capitol Avenue were probably constructed by private interests and are unstable. These levees have a history of failure and many have been repaired by this District. A summary of observed and potential erosion is given in Table A5.

Although there is evidence of a significant sediment transport (deposits in the bypass downstream of Jackson, bed armouring and deposits in flooded areas) there has not been substantial deposition in the existing channel.

Flood Damage Potential

One Percent Flooding

The 1% flow at Dorel Drive is 3,600 cfs, which attenuates to 3,445 cfs at Gridley Street, and increases to 3,600 cfs again due to local inflows of 155 cfs downstream of Gridley Street. There is some flooding along this upstream reach (depth equal to one foot) immediately adjacent to the channel due to channel constrictions at two private drive crossings and at Noble Avenue. The flooding affects Penitencia Creek Road, about 20 homes along the creek, and the grounds of Toyon Elementary School.

Downstream of Piedmont Road, between Station 130+00 and Station 150+00, overbanking on the north side occurs at two locations due to inadequate channel capacity, and the inadequate box culvert at Penitencia Creek Road. The spill flowrates are 300 cfs and 350 cfs respectively. Most of the spill flows west along Helmsley Road toward Capitol Avenue combining with the spill from Sierra Creek near Burgundy Road (120 cfs). Some of the Upper Penitencia spill (150 cfs) flows west adjacent to the creek toward Capitol Avenue. The area affected is nearly all residential and the depth of flooding is less than or equal to one foot.

Due to the restriction at the Capitol Avenue bridge, flow overbanks on both sides of the creek. The north bank spill (150 cfs) flows northwest down Capitol Avenue, eventually combining with the flow from upstream overbanking on Upper Penitencia (650 cfs) and the small spill from Sierra Creek (120 cfs). Some of the resulting spill flow continues northwest down Capitol Avenue (220 cfs), but most of it crosses Capitol Avenue (600 cfs). Another spill occurs from the north bank of Upper Penitencia Creek between Interstate 680 and Capitol Avenue due to channel inadequacy in this reach. This large spill (900 cfs) mingles with the upstream spill that crosses Capitol Avenue (600 cfs) to produce a combined northwest spill flowrate between Interstate 680 and Capitol Avenue of 1,300 cfs. The area flooded is about half agricultural and half residential, and includes Berryessa Elementary School. The depth of flooding varies up to two feet deep.

Eventually, south of Hostetter Road, all floodwaters overbanking north of Upper Penitencia Creek combine to produce a flowrate of 1,500 cfs (1,300 cfs + 220 cfs). At Hostetter Road, the spill flow splits flowing southwest down Hostetter Road (650 cfs) and northwest down the west side of Capitol Avenue (850 cfs). The spill flow down Capitol Avenue separates again such that most (500 cfs) turns west overland joining the spill flow that had been going down Hostetter Road (650 cfs). The resulting overland flow (1,200 cfs) heads north draining into Lower Penitencia Creek at Montague Expressway. This sheetflow floods an extensive area between Highway 17 and Capitol Avenue, south of Montague Expressway. The floodplain is mainly agricultural and industrial with some manufacturing and commercial areas, 70 acres of mobile home park, and over 100 acres of residential subdivision. The depth of flooding is less than or equal to one foot.

The south bank spill at Capitol Avenue (550 cfs) crosses Capitol Avenue and combines with subbasin drainage to produce a total southwest overland flowrate of 850 cfs. This crosses Mabury Road between Interstate 680 and Capitol Avenue, eventually ponding in the depressed Interstate 680 right of way. The floodplain contains some agricultural land, a small trailer park, one residential area, and a shopping center at McKee Road. The depth of flooding is less than or equal to one foot.

Downstream of Interstate 680, the channel flowrate is 1,350 cfs. Between King Road and the floodplain diversion, the channel is not inadequate to contain the channel flowrate of 1,350 cfs, and a spill occurs on the west side. This spill flows south and west down Mabury and King Roads flooding agricultural land and industrial areas up to depths of four feet.

Downstream of King Road, local drainage (150 cfs) increases the channel flowrate to 1,110 cfs. Flooding occurs on both sides of the channel between King Road and the Berryessa Industrial Park Bridge.

All of Upper Penitencia Creek channel is currently inadequate to contain the peak 1% event flows. Elements of the creek which would cause flooding under present conditions are the private drive crossings upstream of Piedmont and Penitencia Creek Roads, the box culvert at Penitencia Creek Road, the bridge at Capitol Avenue, the channel between Interstate 680 and Capitol Avenue, the channel near King Road and the King Road culvert. Extensive damages and flooding as far north as Dixon Landing Road would be caused by spills upstream of Interstate 680.

A summary of channel capacities is given in Table A6.

Flood Damages

Damages which would result from a 1% flood on Upper Penitencia Creek Creek are estimated to be $28.5 million. Average annual damages are approximated at $1.2 million.

The 1% flood damages of $25 million are attributed to the combined spills upstream of Capitol Avenue and upstream of Interstate 280. In 1982, damages in excess of $1 million were sustained when the unstable levees between Jackson Avenue and King Road were overtopped and eroded.

A breakdown of average annual damage by reach and potential 1% flood damage is given in Tables A6 and A7 respectively. Note that Table A7 includes floodwaters of less than one foot.

Remedial Measures

Flood Control Elements

Remedial measures proposed to provide 1% flood capacity on Upper Penitencia Creek from Coyote Creek to Dorel Drive are described below. These measures reflect the results of the Floodplain Management Study conducted in 1984 by the U. S. Soil Conservation Service. A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

1. Coyote Creek to King Road - To augment the existing channel capacity of 800 cfs in this reach, a new alignment is proposed. A concrete bypass channel, partially covered, would be constructed from the existing channel upstream of King Road,

behind the Berryessa Flea Market to Coyote Creek. The existing channel would remain to carry low flows and to serve as an outfall for local drainage.

2. King Road to Interstate 680 - The typical section proposed in this reach is a floodplain with levees approximately six feet above existing ground level. The floodplains follow the natural stream except at Maybury Road where the creek briefly crosses to the south side while the floodplain remains on the north side of the road.

3. Interstate 680 to Capitol Avenue - A trapazoidal earth channel with levees and two energy dissapators is proposed for this section. The bridge at Capitol Avenue would be modified.

4. Capitol Avenue to Piedmont Road - A modified floodplain with an excavated bypass is proposed for this reach. The culvert under Penitencia Creek Road would remain. The bridge at Piedmont Avenue is adequate.

5. Piedmont Road to SCWVD Percolation Ponds - The proposed section for this reach is a flood plain contained by a floodwall on the north and a berm on the south side of Penitencia Creek Road. One home would require relocation along this reach.

6. SCVWD Percolation Ponds to Noble Avenue - The proposed section for this reach is an excavated earth channel parallel to the existing creek. The existing creek would remain in its natural condition and convey 800 cfs.

7. Noble Avenue to Dorel Drive - This reach will require an assortment of channel modifications, including 800 feet of U-frame concrete channel upstream of Noble Avenue followed by a 400 foot rock lined overflow channel and then a modified floodplain. The bridge at Noble Avenue would have to be replaced and the culvert at Dorel Drive would have to be modified.

Cost Estimates

The total cost of the flood control elements is estimated at $13.4 million, including $3.0 million of non-federal funds. Annual operation and maintenance costs are estimated at $41,400. Table A9 gives a summary of the construction costs for the remedial flood control elements proposed by the U. S. Soil Conservation Service on Upper Penitencia Creek.

Funding

The District applied for federal assistance under special Floodplain Management Study authorization in November 1982. The Soil Conservation Service received approval and funding in January 1984 to do an initial reconnaissance level investigation with a draft expected by December 1984. Table A10 illustrates how potential for federal funding under the Floodplain Management Study authorization was identified for Upper Penitencia Creek.

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
UPPER PENITENCIA CREEK	CONFL.W/ COYOTE CK	0.00	8.0	0.8	1100.	0.045	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	D/S WESTERN PACIFIC RR	8.00	8.0	0.8	1100.	0.045	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	D/S BRYSSA IND PK CUL	23.00	24.0	6.0	1100.	0.020	BOX CULVERT	0/ 0
UPPER PENITENCIA CREEK	U/S BRYSSA IND PK CUL	23.60	8.0	0.8	1100.	0.035	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	D/S KING RD	35.25	22.0	5.0	1000.	0.020	BOX CULVERT	0/ 0
UPPER PENITENCIA CREEK	U/S KING RD	35.50	8.0	0.8	1000.	0.035	EARTHLEVEES	0/ 0
UPPER PENITENCIA CREEK	DIAMOND DR.	47.50	8.0	0.8	1300.	0.035	EARTHLEVEES	0/ 0
UPPER PENITENCIA CREEK	D/S MABURY RD	56.65	24.0	6.0	700.	0.020	BOX CULVERT	0/ 0
UPPER PENITENCIA CREEK	U/S MABURY RD	57.00	5.0	1.0	700.	0.035	EARTHLEVEES	0/ 0
UPPER PENITENCIA CREEK	D/S EDUCATIONAL PK RD	63.38	24.0	6.0	700.	0.015	BOX CULVERT	0/ 0
UPPER PENITENCIA CREEK	U/S EDUCATIONAL PK RD	63.92	5.0	1.0	700.	0.035	EARTHLEVEES	0/ 0
UPPER PENITENCIA CREEK	D/S JACKSON AVE	89.35	20.0	6.0	1350.	0.025	SEMI - CIRCULAR CULVERT	0/ 0
UPPER PENITENCIA CREEK	U/S JACKSON AVE	90.07	10.0	0.8	1450.	0.035	EARTHLEVEES	0/ 0
UPPER PENITENCIA CREEK	U/S FWY 680	108.00	5.0	1.0	1450.	0.035	NATURAL - UNMODIFIED	0/ 0
UPPER PENTENCIA CREEK	D/S CAPITOL AVE.	117.50	10.0	6.0	3600.	0.025	BOX CULVERT	0/ 0
UPPER PENTENCIA CREEK	U/S CAPITOL AVE.	119.00	5.0	1.0	3600.	0.025	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	D/S HEATHERFIELD LN	127.00	4.0	0.8	3600.	0.025	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	HEATHERFIELD LN	129.00	4.0	0.8	3600.	0.025	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	U/S SUMMERVIEW	133.00	4.0	1.0	3600.	0.025	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	D/S PENITENCIA CRK RD	146.70	24.0	8.5	3600.	0.025	BOX CULVERT	0/ 0
UPPER PENITENCIA CREEK	U/S PENITENCIA CRK RD	149.39	4.0	1.0	3600.	0.035	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	D/S PIEDMONT/WHITE RD	170.00	5.0	1.0	3600.	0.035	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	U/S NOBLE AVE	197.50	5.0	2.0	3600.	0.035	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	U/S DOREL DR	217.50	5.0	1.0	3600.	0.040	NATURAL - UNMODIFIED	0/ 0

EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE=A1 12/13/84

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
UPPER PENITENCIA CREEK	U/S BOULDER DR	240.00	4.0	1.0	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	LARIAT LN	245.00	5.0	1.5	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	CANON VISTA	260.00	3.0	1.0	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	ALUM ROCK RD	280.00	5.0	0.8	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	PENITENCIA CREEK RD	300.00	4.0	0.8	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	D/S ROAD JUNCTION	315.00	4.0	0.8	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	D/S ALUM ROCK FALLS RD	320.00	10.0	0.8	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	ALUM ROCK RD XING	345.00	12.0	0.5	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	CONFL.W/ ARROYO AGUAGUE	350.00	12.0	0.5	3600.	0.040	NATURAL - UNMODIFIED	0/ 0
UPPER PENITENCIA CREEK	LIMIT OF JURISDICTION	583.00	LIMIT OF JURISDICTION					

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                EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE-A2                        12/13/84

                                   SUMMARY OF CHANNEL TYPES

                 THERE ARE     0.01  MILES OF   SEMI - CIRCULAR CULVERT

                 THERE ARE     0.11  MILES OF   BOX CULVERT

                 THERE ARE     1.34  MILES OF   EARTHLEVEES

                 THERE ARE     9.57  MILES OF   NATURAL - UNMODIFIED


                 TOTAL        11.04  MILES
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EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE-A3 12/13/84

CHANNEL ENVIRONMENTAL CONDITIONS

CREEK	LOCATION	STATION	HABITAT TYPE: NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOOD-LAND	RIPAR-IAN	VEGETA-TIVE QUANTITY	HABITAT QUALITY	MULTIPURPOSES: GW RECHG	RECRE-ATION
UPPER PENITENCIA	CONF WITH COYOTE	0.00	ENVIRONMENTAL CONDITIONS UNKNOWN								X	X
UPPER PENITENCIA	D/S MABURY RD	40.00						X	SPARSE	LOW	X	X
DOMINANT SPECIES; BLACK WALNUT												
UPPER PENITENCIA	EDUCATIONAL PK DR	50.00						X	ABUNDANT	GOOD	X	X
DOMINANT SPECIES; BLACK WALNUT, ARROYO WILLOW, BLUE ELDERBERRRY, SYCAMORE, LIVE OAK, ENGLISH WALNUT, FREMONT COTTONWOOD												
UPPER PENITENCIA	D/S FWY 680	82.00				X			SPARSE	LOW	X	X
DOMINANT SPECIES; GRASSLAND, WEEDS												
UPPER PENITENCIA	FREEWAY 680	90.00						X	ABUNDANT	HIGH	X	X
DOMINANT SPECIES; SYCAMORE, LIVE OAK, WILLOW												
UPPER PENITENCIA	HEATHERFIELD LANE	110.00						X	SPARSE	LOW	X	X
DOMINANT SPECIES; SYCAMORE												
UPPER PENITENCIA	VICEROY WAY	130.00						X	ABUNDANT	HIGH	X	X
DOMINANT SPECIES; SYCAMORE, LIVE OAK, WILLOWS												
UPPER PENITENCIA	LINDA VISTA ST	169.00						X	MODERATE	MODERATE	X	X
DOMINANT SPECIES; BLUE GUM, WILLOWS												
PENITENICA CREEK	PENITENCIA PONDS	170.00	ENVIRONMENTAL CONDITIONS UNKNOWN								X	X
UPPER PENITENCIA	U/S PIEDMONT RD	172.00						X	MODERATE	MODERATE	X	X
DOMINANT SPECIES; BLUE GUM, WILLOWS												
UPPER PENITENCIA	NR LINDA VISTA ST	175.00						X	MODERATE	GOOD	X	X
DOMINANT SPECIES; SYCAMORE, YELLOW WILLOW, POISON OAK, LIVE OAK, OREGON OAK, ARROYO WILLOW THERE IS A GRADUAL REDUCTION IN VEGETATIVE DENSITY FROM UPSTREAM TO DOWNSTREAM, WITH SYCAMORE DOMINATING.												
UPPER PENITENCIA	DOREL DRIVE	197.50						X	ABUNDANT	HIGH	X	X
DOMINANT SPECIES; ALDER, SYCAMORE, YELLOW WILLOW, POISON OAK, LIVE OAK, OREGON OAK, ARROYO WILLOW												
UPPER PENITENCIA	LIMIT OF JURISDICT	583.00	LIMITS OF JURISDICTION									

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                    SUMMARY OF CHANNEL ENVIRONMENTAL CONDITIONS


                THIS SUMMARY INCLUDES A TOTAL OF    11.04  MILES  OF CHANNEL.
                HABITAT TYPES:
                     THERE ARE      0.15  MILES OF GRASSLAND HABITAT
                     THERE ARE     10.13  MILES OF RIPARIAN HABITAT
                QUANTITY OF VEGETATION:
                     THERE ARE      0.76  MILES WITH NO VEGETATION
                     THERE ARE      0.72  MILES WITH SPARSE VEGETATION
                     THERE ARE      0.54  MILES WITH MODERATE VEGETATION
                     THERE ARE      9.02  MILES WITH ABUNDANT VEGETATION
                QUALITY OF HABITAT:
                     THERE ARE      0.76  MILES WITH VERY LOW QUALITY HABITAT
                     THERE ARE      0.72  MILES WITH LOW QUALITY HABITAT
                     THERE ARE      0.11  MILES WITH MODERATE QUALITY HABITAT
                     THERE ARE      1.03  MILES WITH GOOD QUALITY HABITAT
                     THERE ARE      8.42  MILES WITH HIGH QUALITY HABITAT
                THERE ARE    11.04  MILES WHICH PROVIDE GROUNDWATER RECHARGE
                THERE ARE    11.04  MILES WHICH PROVIDE RECREATIONAL BENEFITS
```

EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE-A5 12/13/84

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
UPPER PENITENCIA CREEK CONFL.W/ COYOTE CK	0.00	3.3	3.8	5.3	1.0	0.023	0.113	1.0	1.0
UPPER PENITENCIA CREEK D/S WESTERN PACIFIC RR	8.00	3.3	3.8	5.3	1.0	0.028	0.113	1.0	1.0
UPPER PENITENCIA CREEK D/S BRYSSA IND PK CUL	23.00				NON-ERODING REACH				
UPPER PENITENCIA CREEK U/S BRYSSA IND PK CUL	23.60	3.3	7.5	6.1	2.0	0.116	0.106	2.0	3.2
UPPER PENITENCIA CREEK D/S KING RD	35.25				NON-ERODING REACH				
UPPER PENITENCIA CREEK U/S KING RD	35.50	3.3	5.8	8.7	1.0	0.055	0.148	1.0	1.0
UPPER PENITENCIA CREEK DIAMOND DR.	47.50	3.3	6.5	3.2	2.0	0.150	0.051	2.0	3.2
UPPER PENITENCIA CREEK D/S MABURY RD	56.65				NON-ERODING REACH				
UPPER PENITENCIA CREEK U/S MABURY RD	57.00	3.3	8.0	2.5	2.0	0.248	0.052	2.0	3.2
UPPER PENITENCIA CREEK D/S EDUCATIONAL PK RD	63.38				NON-ERODING REACH				
UPPER PENITENCIA CREEK U/S EDUCATIONAL PK RD	63.92	3.3	6.7	2.5	2.0	0.173	0.052	2.0	3.2
UPPER PENITENCIA CREEK D/S JACKSON AVE	89.35				NON-ERODING REACH				
UPPER PENITENCIA CREEK U/S JACKSON AVE	90.07	3.2	20.0	2.3	2.0	1.454	0.045	2.0	2.0
UPPER PENITENCIA CREEK U/S FWY 680	108.00	3.3	13.9	2.5	2.0	0.743	0.052	2.0	3.2
UPPER PENTENCIA CREEK D/S CAPITOL AVE.	117.50				NON-ERODING REACH				
UPPER PENTENCIA CREEK U/S CAPITOL AVE.	119.00	3.3	9.0	2.9	2.0	0.295	0.054	2.0	3.2

EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE-A5 12/13/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
UPPER PENITENCIA CREEK D/S HEATHERFIELD LN	127.00	3.3	8.7	3.0	2.0	0.295	0.058	2.0	3.2
UPPER PENITENCIA CREEK HEATHERFIELD LN	129.00	3.3	8.7	3.0	2.0	0.295	0.058	2.0	3.2
UPPER PENITENCIA CREEK U/S SUMMERVIEW	133.00	3.3	17.5	2.8	2.0	1.242	0.053	2.0	3.2
UPPER PENITENCIA CREEK D/S PENITENCIA CRK RD	146.70				NON-ERODING REACH				
UPPER PENITENCIA CREEK U/S PENITENCIA CRK RD	149.39	3.3	20.0	2.5	2.0	1.569	0.054	2.0	3.2
UPPER PENITENCIA CREEK D/S PIEDMONT/WHITE RD	170.00	3.3	16.0	2.7	2.0	0.909	0.055	2.0	3.2
UPPER PENITENCIA CREEK U/S NOBLE AVE	197.50	3.3	20.0	2.5	2.0	1.486	0.049	2.0	3.2
UPPER PENITENCIA CREEK U/S DOREL DR	217.50	3.3	20.0	2.4	2.0	1.612	0.050	2.0	3.2
UPPER PENITENCIA CREEK U/S BOULDER DR	240.00	3.3	20.0	6.3	2.0	0.935	0.150	2.0	3.2
UPPER PENITENCIA CREEK LARIAT LN	245.00	3.3	8.7	7.3	2.0	0.129	0.159	1.0	3.2
UPPER PENITENCIA CREEK CANON VISTA	260.00	3.2	13.3	7.3	2.0	0.331	0.176	2.0	2.0
UPPER PENITENCIA CREEK ALUM ROCK RD	280.00	3.2	20.0	6.9	2.0	0.886	0.158	2.0	2.0
UPPER PENITENCIA CREEK PENITENCIA CREEK RD	300.00	3.2	15.7	7.3	2.0	0.519	0.172	2.0	2.0
UPPER PENITENCIA CREEK D/S ROAD JUNCTION	315.00	3.3	15.7	4.3	2.0	1.557	0.060	2.0	3.2
UPPER PENITENCIA CREEK D/S ALUM ROCK FALLS RD	320.00	3.3	11.3	4.3	2.0	0.701	0.053	2.0	3.2
UPPER PENITENCIA CREEK ALUM ROCK RD XING	345.00	3.2	12.3	4.3	2.0	0.885	0.052	2.0	2.0
UPPER PENITENCIA CREEK CONFL.W/ ARROYO AGUAGUE	350.00	3.2	12.3	4.3	2.0	0.885	0.052	2.0	2.0

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                                           EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE-A5                                 12/13/84

             CREEK                                OBSERVED      ALLOWABLE VELOCITY                TRACTIVE FORCE                EROSION
               LOCATION            STATION        EROSION                                                                        POTENTIAL
                                                  CLASS      ACTUAL    ALLOW     CLASS     ACTUAL    ALLOW     CLASS            CLASS
                                                  (1.0-4.0)  FT/SEC    FT/SEC    (1-4)     LB/SF     LB/SF     (1-4)            (1.0-4.0)

      UPPER PENITENCIA CREEK
          LIMIT OF JURISDICTION    583.00       LIMIT OF DISTRICT              JURISDICTION
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EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE-A6 1/15/85

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS 1% CFS	DESIGN FLOWS 10% CFS	EXIST CONDITIONS Q1% CFS	EXIST CONDITIONS CAPCTY CFS	EXIST CONDITIONS N	FREQ OF FLOOD (YEAR)	FLOOD DAMAGES 1% (IN 1000$)	FLOOD DAMAGES AVG ANN (IN 1000$)
UPPER PENITENCIA CR U/S CONFL WITH COYOTE	0.00	23.91	0.0	4600.	1700.	1100.	1100.	.045	100.	0.0	0.0
UPPER PENITENCIA CR D/S BRYSSA IND PK CUL	23.00	23.91	0.0	4600.	1700.	1100.	1730.	.020	100.	0.0	0.0
UPPER PENITENCIA CR U/S BRYSSA IND PK CUL	23.60	23.91	0.0	4600.	1700.	1100.	1000.	.035	4.	2644.6	119.1
UPPER PENITENCIA CR D/S KING ROAD	35.25	23.91	0.0	4600.	1700.	1000.	750.	.020	3.	56.8	2.7
UPPER PENITENCIA CR U/S KING ROAD	35.50	23.91	0.0	4600.	1700.	1000.	900.	.035	4.	2724.0	125.6
UPPER PENITENCIA CR DIAMOND DR.	47.50	23.00	0.0	4600.	1700.	1300.	1000.	.035	4.	0.0	0.0
UPPER PENITENCIA CR D/S LOWER MABURY	56.65	23.00	0.0	4600.	1700.	700.	1440.	.020	100.	0.0	0.0
UPPER PENITENCIA CR U/S LOWER MABURY	57.00	23.00	0.0	4600.	1700.	700.	1300.	.035	100.	0.0	0.0
UPPER PENITENCIA CR D/S ED. PARK DR.	63.38	23.00	0.0	4600.	1700.	700.	1000.	.015	100.	0.0	0.0
UPPER PENITENCIA CR U/S ED. PARK DR.	63.92	23.00	0.0	4600.	1700.	700.	1300.	.035	100.	0.0	0.0
UPPER PENITENCIA CR D/S UPPER MABURY	71.00	23.00	0.0	4600.	1700.	700.	1600.	.025	100.	0.0	0.0
UPPER PENITENCIA CR U/S UPPER MABURY	71.28	23.00	0.0	4600.	1700.	700.	1600.	.035	100.	0.0	0.0
UPPER PENITENCIA CR U/S DIVERSION	87.70	23.00	0.0	4600.	1700.	1300.	1300.	.035	100.	0.0	0.0
UPPER PENITENCIA CR D/S JACKSON ARCH	89.35	23.00	0.0	4600.	1700.	1350.	1300.	.025	6.	0.0	0.0
UPPER PENITENCIA CR U/S JACKSON ARCH	90.07	23.00	0.0	4600.	1700.	1450.	1800.	.035	100.	0.0	0.0
UPPER PENITENCIA CR D/S CAPITOL AVE	117.50	23.00	0.0	4600.	1700.	3600.	1350.	.025	7.	12731.2	480.2

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                              EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE=A6                              1/15/85

        CREEK                                  DRAIN     MEAN      DESIGN FLOWS     EXIST CONDITIONS     FREQ OF     FLOOD DAMAGES
          LOCATION                  STATION    AREA     ANNUAL      1%      10%      Q1%  CAPCTY   N      FLOOD       1%    AVG ANN
                                               SQ MI    PRECIP     CFS     CFS      CFS    CFS           (YEAR)      (IN 1000$)

  UPPER PENITENCIA CR
     D/S PENITENCIA CREEK RD        146.70     23.00      0.0     4600.   1700.     3600.  2600. .025     21.       1172.8     26.4

  UPPER PENITENCIA CR
     U/S PENITENCIA CREEK RD        149.39     23.00      0.0     4600.   1700.     3600.  3000. .035     29.       9858.0    188.3

  UPPER PENITENCIA CR
     U/S PIEDMONT RD                172.00     22.19      0.0     4500.   1500.     3600.  1700. .035     12.          0.0      0.0

  UPPER PENITENCIA CR
     U/S NOBLE AVE.                 197.50     22.19      0.0     4500.   1500.     3600.  3600. .035    100.          0.0      0.0

  UPPER PENITENCIA CR
     U/S DOREL AVE                  217.50     21.10      0.0     4300.   1300.     3600.  3600. .040    100.          0.0      0.0

  UPPER PENITENCIA
     LIMITS OF JURISDICTION         583.00      0.75      0.0      100.     30.       85.    85. .040    100.          0.0      0.0

   TOTAL AVERAGE ANNUAL DAMAGES ($1000) =     942.
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                    EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE-A7                                    12/13/84

                                      S U M M A R Y

                              DAMAGES-INSURANCE-FLOODPROOFING-ACQUISITION

         REALESTATE INDEX= 118.0

                                     AREA      NUMBER    1%FLOOD     ANNUAL      FLOOD      FLOODPLAIN
         LAND USE                   FLOODED      OF      DAMAGES    INSURANCE   PROOFING   ACQUISITION
                                     ACRES      BLDGS    (1000$)   (1000$/YR)   (1000$)     (1000$)


            SF RESIDENT               569.      2619.     13220.      1120.8     26188.      353893.
            APT RESID                  38.       266.       891.        94.4       451.       35457.
            MOBILE HOME                91.       819.      1983.       191.2      1329.       56148.
            COMMERCIAL                 84.        35.       796.       155.7      1124.       64007.
            INDUSTRIAL                567.       218.     12017.       674.9      2945.      296137.
            SCHLS,PUBLC                15.         4.       192.        11.8       400.       15990.
            OPEN IMPRVD               235.         0.        52.         0.0         0.       38459.
            AGRICULTURE               799.         0.        42.         0.0         0.       98959.
            VACLND/S,PND              180.         0.         0.         0.0         0.       34780.


            TOTAL                    2578.      3960.     29192.      2248.8     32436.      993830.
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SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGU= LATION	DIS= COURAGE= MENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCT= URE	ENLARGE CULVERT
0,00	XXX	XXX	XXX	XXX	XXX		XXX					
8,00	XXX	XXX	XXX	XXX	XXX		XXX					
23,00	XXX	XXX	XXX	XXX	XXX							XXX
23,60	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
35,25	XXX	XXX	XXX	XXX	XXX	XXX						XXX
35,50	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
40,00	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
47,50	XXX	XXX	XXX	XXX	XXX							
50,00	XXX	XXX	XXX	XXX	XXX							
56,65	XXX	XXX	XXX	XXX	XXX							XXX
57,00	XXX	XXX	XXX	XXX	XXX							
63,38	XXX	XXX	XXX	XXX	XXX							XXX
63,92	XXX	XXX	XXX	XXX	XXX							
71,00	XXX	XXX	XXX	XXX	XXX							
71,28	XXX	XXX	XXX	XXX	XXX							
82,00	XXX	XXX	XXX	XXX	XXX							
87,70	XXX	XXX	XXX	XXX	XXX							
89,35	XXX	XXX	XXX	XXX	XXX							XXX
90,00	XXX	XXX	XXX	XXX	XXX							XXX
90,07	XXX	XXX	XXX	XXX	XXX		XXX					
108,00	XXX	XXX	XXX	XXX	XXX		XXX					
110,00	XXX	XXX	XXX	XXX	XXX		XXX					
117,50	XXX	XXX	XXX	XXX	XXX	XXX						XXX
119,00	XXX	XXX	XXX	XXX	XXX	XXX	XXX			XXX		
127,00	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
129,00	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
130,00	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
133,00	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
146,70	XXX	XXX	XXX	XXX	XXX	XXX						XXX
149,39	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
169,00	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
170,00	XXX	XXX	XXX	XXX	XXX	XXX				XXX		
172,00	XXX	XXX	XXX	XXX	XXX							
175,00	XXX	XXX	XXX	XXX	XXX							
197,50	XXX	XXX	XXX	XXX	XXX							
217,50	XXX	XXX	XXX	XXX	XXX							
240,00	XXX	XXX	XXX	XXX	XXX							
245,00	XXX	XXX	XXX	XXX	XXX							
260,00	XXX	XXX	XXX	XXX	XXX							
280,00	XXX	XXX	XXX	XXX	XXX							
300,00	XXX	XXX	XXX	XXX	XXX							
315,00	XXX	XXX	XXX	XXX	XXX							
320,00	XXX	XXX	XXX	XXX	XXX							
345,00	XXX	XXX	XXX	XXX	XXX							
350,00	XXX	XXX	XXX	XXX	XXX							

EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE=A8 12/13/84

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	CONST BYPASS	WATERSHED TREATMENT	CONST DAM/ RESERV	INSTALL SEDIMENT BASIN	EMERGENCY PROCEDURE /WARNING	INSUR REGUL MANAG	**DOWNSTREAM CONFLICTS***			**CAPACITY < **	
							INDUCE FLOOD	RECHARGE /EROSION	ENVIRON QUALITY	DESIGN Q1%	EXIST Q1%
0.00						XXX				XXX	
8.00						XXX				XXX	
23.00						XXX				XXX	
23.60					XXX	XXX	XXX			XXX	XXX
35.25					XXX	XXX	XXX			XXX	XXX
35.50					XXX	XXX	XXX			XXX	XXX
40.00					XXX	XXX	XXX			XXX	XXX
47.50						XXX	XXX			XXX	XXX
50.00						XXX	XXX		XXX	XXX	XXX
56.65						XXX			XXX	XXX	
57.00						XXX			XXX	XXX	
63.38						XXX			XXX	XXX	
63.92						XXX			XXX	XXX	
71.00						XXX			XXX	XXX	
71.28						XXX			XXX	XXX	
82.00						XXX				XXX	
87.70						XXX				XXX	
89.35						XXX	XXX			XXX	XXX
90.00						XXX	XXX		XXX	XXX	XXX
90.07						XXX			XXX	XXX	
108.00						XXX			XXX	XXX	
110.00						XXX				XXX	
117.50					XXX	XXX	XXX			XXX	XXX
119.00					XXX	XXX	XXX			XXX	XXX
127.00					XXX	XXX	XXX			XXX	XXX
129.00					XXX	XXX	XXX			XXX	XXX
130.00					XXX	XXX	XXX		XXX	XXX	XXX
133.00					XXX	XXX	XXX		XXX	XXX	XXX
146.70		XXX		XXX	XXX	XXX	XXX		XXX	XXX	XXX
149.39					XXX	XXX	XXX		XXX	XXX	XXX
169.00					XXX	XXX	XXX			XXX	XXX
170.00					XXX	XXX	XXX			XXX	XXX
172.00						XXX	XXX			XXX	XXX
175.00						XXX	XXX		XXX	XXX	XXX
197.50						XXX			XXX	XXX	
217.50						XXX			XXX	XXX	
240.00						XXX			XXX	XXX	
245.00						XXX			XXX	XXX	
260.00						XXX			XXX	XXX	
280.00						XXX			XXX	XXX	
300.00						XXX			XXX	XXX	
315.00		XXX		XXX		XXX			XXX	XXX	
320.00		XXX		XXX		XXX			XXX	XXX	
345.00		XXX		XXX		XXX			XXX	XXX	
350.00		XXX		XXX		XXX			XXX	XXX	

ELEMENTS (I.E. PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF UPPER PENITENCIA CREEK

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REGULATION TO PREVENT OCCURANCE OF PROBLEM
DISCOURAGEMENT OF INAPPROPRIATE LAND USES
PUBLIC ACQUISITION OF FULL FLOODPLAIN
REMOVAL OF ENDANGERED STRUCTURES
FLOODPROOFING OF STRUCTURES INFLOODPLAIN
FLOOD INSURANCE; REGULATION + MANAGEMENT
```

EAST ZONE REPORT (UPPER PENITENCIA CREEK) TABLE-A9 12/13/84

-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CHANNEL LINING				
-Trapezoidal Concrete		L.F.	2525	
-Rectangular Concrete		L.F.	1325	
-Earth/rock lined sides		L.F.	8400	
-Earth/totally rock lined		L.F.	6850	
STRUCTURAL				
-Culverts/Bridges		EA	4	
-Drop Structures		EA	7	
-Diversion Structures		EA	3	
RELOCATION				
-Houses		EA	1	
-Roads		EA	1	

-TOTAL CONSTRUCTION COSTS (SCS)- $10,321,700

-TOTAL COSTS (NON-FEDERAL)- $3,019,100

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $13,340,800

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

LOWER PENITENCIA CREEK (4033)

Watercourse Inventory

Watershed Description

The Lower Penitencia Creek watershed comprises approximately 28 square miles. The watercourse is approximately 4.1 miles from the confluence with Coyote Creek to the limit of District jurisdiction. Major tributaries to Lower Penitencia Creek are Berryessa Creek (22 square miles) and the East Penitencia Channel. Lower Penitencia Creek is located within the cities of Milpitas and San Jose, and unincorporated areas of Santa Clara County. Channel characteristics on Lower Penitencia Creek are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

Lower Penitencia Creek is considered to have very low quality habitat. Lower Penitencia Creek is not used as a recharge facility, and includes no developed recreation facilities. Tables A3 and A4 are not included in Appendix A.

Erosion and Sediment

There are no reaches with observed erosion greater than one foot on Lower Penitencia Creek. A summary of observed and potential erosion is given in Table A5.

Downstream of Berryessa Creek, sediment deposition occurs on Lower Penitencia Creek. Deposition in this reach is attributed to erosion in the upstream watershed and tidally transported sediments.

Flood Damage Potential

Lower Penitencia Creek has adequate capacity to pass the 1% flow from its own watershed. The 1% flow rate at the confluence with Coyote Creek is 3,5000 cfs. A summary of channel capacities is given in Table A6. Tables A7, A8, and A9 are not included in Appendix A.

Funding

The recently constructed flood control measures on Lower Penitencia Creek were financed through three sources: 1) District East Zone ad valorem tax, 2) benefit assessment, and 3) private developers. Table A10 illustrates how the potential for these sources of funding were identified.

EAST ZONE REPORT (LOWER PENITENCIA CREEK) TABLE-A1 12/13/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
LOWER PENITENCIA CREEK	CONFL.W/ COYOTE CR	0.00	120.0	2.0	3500.	0.030	EARTHLEVEES	8/55
LOWER PENITENCIA CREEK	D/S HWY 17	4.50	68.0	1.0	3500.	0.015	TRAPEZOIDAL CONCRETE	8/55
LOWER PENITENCIA CREEK	U/S HWY 17	7.50	55.0	1.0	3500.	0.015	TRAPEZOIDAL CONCRETE	0/ 0
LOWER PENITENCIA CREEK	U/S CALIF.CIRCLE AVE.	13.80	60.0	2.0	2500.	0.030	EXCAVATED EARTH BYPASS	8/55
LOWER PENITENCIA CREEK	D/S BERRYESSA CR CONFL	38.40	60.0	1.0	2500.	0.015	TRAPEZOIDAL CONCRETE	8/55
LOWER PENITENCIA CREEK	D/S BERRYESSA CR CONFL	43.00	40.0	2.0	700.	0.030	EXCAVATED EARTH	8/55
LOWER PENITENCIA CREEK	U/S BERRYESSA CR CONFL	47.30	22.0	1.2	700.	0.035	ROCK LINED - SIDES ONLY	0/ 0
LOWER PENITENCIA CREEK	U/S SAN ANDREAS DR	50.50	12.0	2.0	700.	0.030	EXCAVATED EARTH	8/55
LOWER PENITENCIA CREEK	D/S TENNIS COURTS	58.00	37.0	1.5	700.	0.035	ROCK LINED - SIDES ONLY	8/55
LOWER PENITENCIA CREEK	D/S REDWOOD AVE	66.50	8.0	2.0	700.	0.030	SACKED CONCRETE RIPRAP	9/82
LOWER PENITENCIA CREEK	U/S REDWOOD AVE	69.00	20.0	1.5	700.	0.030	FLOODWALLS	0/ 0
LOWER PENITENCIA CREEK	D/S MARYLINN DR	88.80	35.0	9.0	1150.	0.015	BOX CULVERT	8/55
LOWER PENITENCIA CREEK	U/S MARYLINN DR. RCB	89.20	20.0	1.5	1150.	0.030	EXCAVATED EARTH	8/55
LOWER PENITENCIA CREEK	D/S CALAVERAS BLVD RCB	111.74	28.0	9.0	1300.	0.015	BOX CULVERT	12/62
LOWER PENITENCIA CREEK	U/S CALAVERAS BLVD RCB	113.20	24.0	1.5	1300.	0.030	EXCAVATED EARTH	12/62
LOWER PENITENCIA CREEK	D/S SERRA WAY RCB	122.00	24.0	9.0	1300.	0.015	BOX CULVERT	12/62
LOWER PENITENCIA CREEK	U/S SERRA WAY RCB	122.60	24.0	1.5	1250.	0.030	EXCAVATED EARTH	12/62
LOWER PENITENCIA CREEK	D/S SHOPPING CENTER RCB	124.00	20.0	7.0	1150.	0.015	BOX CULVERT	12/62
LOWER PENITENCIA CREEK	U/S SHOPPING CENTER RCB	124.60	24.0	1.5	1050.	0.030	EXCAVATED EARTH	12/62
LOWER PENITENCIA CREEK	D/S JUNIPERO DR. RCB	128.00	28.0	7.0	950.	0.015	BOX CULVERT	12/62
LOWER PENITENCIA CREEK	U/S JUNIPERO DR. RCB	128.75	24.0	1.5	950.	0.030	EXCAVATED EARTH	12/62
LOWER PENITENCIA CREEK	D/S CORNING AVE. RCB	133.50	28.0	7.0	950.	0.015	BOX CULVERT	12/63
LOWER PENITENCIA CREEK	U/S CORNING AVE. RBC	134.10	24.0	1.5	950.	0.030	EXCAVATED EARTH	12/63
LOWER PENITENCIA CREEK	D/S SYLVIA AVE. RCB	135.50	26.0	7.0	950.	0.015	BOX CULVERT	0/ 0

EAST ZONE REPORT (LOWER PENITENCIA CREEK) TABLE-A1 12/13/84

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
LOWER PENITENCIA CREEK	U/S SYLVIA AVE. RCB	136.10	22.0	1.5	950.	0.030	EXCAVATED EARTH	0/ 0
LOWER PENITENCIA CREEK	D/S ELMWOOD ENTR. RBC	152.15	18.0	7.0	1210.	0.015	BOX CULVERT	0/ 0
LOWER PENITENCIA CREEK	U/S ELMWOOD ENTR. RCB	152.50	12.0	1.5	1210.	0.030	EXCAVATED EARTH	0/ 0
LOWER PENITENCIA CREEK	D/S PG&E R/W RCB	167.15	18.0	7.0	1210.	0.015	BOX CULVERT	0/ 0
LOWER PENITENCIA CREEK	U/S PG&E R/W RCB	167.70	12.0	1.5	1210.	0.030	EXCAVATED EARTH	0/ 0
LOWER PENITENCIA CREEK	D/S CAPITOL AVE RCB	174.00	12.0	8.0	1120.	0.015	BOX CULVERT	0/ 0
LOWER PENITENCIA CREEK	U/S CAPITOL-ABEL RCB	176.00	10.0	1.5	1160.	0.030	EXCAVATED EARTH	0/ 0
LOWER PENITENCIA CREEK	D/S MAIN ST. RCB	184.50	12.0	8.0	1160.	0.015	BOX CULVERT	0/ 0
LOWER PENITENCIA CREEK	U/S MAIN ST. RCB	185.60	96.0	2.0	1160.	0.015	PIPE	0/ 0
LOWER PENITENCIA CREEK	U/S S.P.R.R.	187.50	7.0	2.0	1520.	0.030	EXCAVATED EARTH	0/ 0
LOWER PENITENCIA CREEK	LIMIT OF JURISDICTION	218.00	LIMIT OF JURISDICTION					

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                         SUMMARY OF CHANNEL TYPES


   THERE ARE     0.04  MILES OF    PIPE

   THERE ARE     0.17  MILES OF    BOX CULVERT

   THERE ARE     0.26  MILES OF    TRAPEZOIDAL CONCRETE

   THERE ARE     0.05  MILES OF    SACKED CONCRETE RIPRAP

   THERE ARE     0.22  MILES OF    ROCK LINED - SIDES ONLY

   THERE ARE     0.09  MILES OF    EARTHLEVEES

   THERE ARE     0.38  MILES OF    FLOODWALLS

   THERE ARE     2.46  MILES OF    EXCAVATED  EARTH

   THERE ARE     0.47  MILES OF    EXCAVATED EARTH BYPASS



   TOTAL         4.13  MILES
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EAST ZONE REPORT (LOWER PENITENCIA CREEK) TABLE-A5 12/13/84

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	 ALLOW FT/SEC	 CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	 ALLOW LB/SF	 CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
LOWER PENITENCIA CREEK CONFL.W/ COYOTE CR	0.00	3.2	2.2	7.0	1.0	0.006	0.140	1.0	1.0
LOWER PENITENCIA CREEK D/S HWY 17	4.50				NON-ERODING REACH				
LOWER PENITENCIA CREEK U/S HWY 17	7.50				NON-ERODING REACH				
LOWER PENITENCIA CREEK U/S CALIF.CIRCLE AVE.	13.80	1.0	2.8	5.1	1.0	0.011	0.085	1.0	1.0
LOWER PENITENCIA CREEK D/S BERRYESSA CR CONFL	38.40				NON-ERODING REACH				
LOWER PENITENCIA CREEK D/S BERRYESSA CR CONFL	43.00	3.1	1.0	5.1	1.0	0.001	0.086	1.0	1.0
LOWER PENITENCIA CREEK U/S BERRYESSA CR CONFL	47.30				NON-ERODING REACH				
LOWER PENITENCIA CREEK U/S SAN ANDREAS DR	50.50	2.0	1.8	5.1	1.0	0.006	0.099	1.0	1.0
LOWER PENITENCIA CREEK D/S TENNIS COURTS	58.00				NON-ERODING REACH				
LOWER PENITENCIA CREEK D/S REDWOOD AVE	66.50				NON-ERODING REACH				
LOWER PENITENCIA CREEK U/S REDWOOD AVE	69.00	2.0	1.9	5.0	1.0	0.006	0.095	1.0	1.0
LOWER PENITENCIA CREEK D/S MARYLINN DR	88.80				NON-ERODING REACH				
LOWER PENITENCIA CREEK U/S MARYLINN DR. RCB	89.20	3.2	4.4	4.8	1.0	0.034	0.091	1.0	1.0
LOWER PENITENCIA CREEK D/S CALAVERAS BLVD RCB	111.74				NON-ERODING REACH				
LOWER PENITENCIA CREEK U/S CALAVERAS BLVD RCB	113.20	3.2	3.4	5.0	1.0	0.019	0.091	1.0	1.0
LOWER PENITENCIA CREEK D/S SERRA WAY RCB	122.00				NON-ERODING REACH				

EAST ZONE REPORT (LOWER PENITENCIA CREEK) TABLE=A5

12/13/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1,0=4,0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1,0=4,0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1=4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1=4)	
LOWER PENITENCIA CREEK U/S SERRA WAY RCB	122,60	3,2	3,5	4,9	1,0	0,021	0,091	1,0	1,0
LOWER PENITENCIA CREEK D/S SHOPPING CENTER RCB	124,00				NON=ERODING REACH				
LOWER PENITENCIA CREEK U/S SHOPPING CENTER RCB	124,60	3,2	2,8	5,0	1,0	0,011	0,101	1,0	1,0
LOWER PENITENCIA CREEK D/S JUNIPERO DR, RCB	128,00				NON=ERODING REACH				
LOWER PENITENCIA CREEK U/S JUNIPERO DR, RCB	128,75	3,2	2,7	4,9	1,0	0,010	0,101	1,0	1,0
LOWER PENITENCIA CREEK D/S CORNING AVE, RCB	133,50				NON=ERODING REACH				
LOWER PENITENCIA CREEK U/S CORNING AVE, RBC	134,10	3,2	3,3	4,8	1,0	0,015	0,095	1,0	1,0
LOWER PENITENCIA CREEK D/S SYLVIA AVE, RCB	135,50				NON=ERODING REACH				
LOWER PENITENCIA CREEK U/S SYLVIA AVE, RCB	136,10	3,2	3,5	4,8	1,0	0,017	0,100	1,0	1,0
LOWER PENITENCIA CREEK D/S ELMWOOD ENTR, RBC	152,15				NON=ERODING REACH				
LOWER PENITENCIA CREEK U/S ELMWOOD ENTR, RCB	152,50	3,2	5,0	4,9	2,0	0,047	0,099	1,0	2,0
LOWER PENITENCIA CREEK D/S PG&E R/W RCB	167,15				NON=ERODING REACH				
LOWER PENITENCIA CREEK U/S PG&E R/W RCB	167,70	3,2	4,9	4,9	1,0	0,043	0,100	1,0	1,0
LOWER PENITENCIA CREEK D/S CAPITOL AVE RCB	174,00				NON=ERODING REACH				
LOWER PENITENCIA CREEK U/S CAPITOL=ABEL RCB	176,00	3,2	5,1	4,9	2,0	0,049	0,101	1,0	2,0
LOWER PENITENCIA CREEK D/S MAIN ST, RCB	184,50				NON=ERODING REACH				
LOWER PENITENCIA CREEK U/S MAIN ST, RCB	185,60				NON=ERODING REACH				

EAST ZONE REPORT (LOWER PENITENCIA CREEK) TABLE-A5

12/13/84

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY			TRACTIVE FORCE			EROSION POTENTIAL CLASS (1.0-4.0)
			ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	
LOWER PENITENCIA CREEK U/S S.P.R.R.	187.50	3.2	2.9	5.3	1.0	0.012	0.122	1.0	1.0
LOWER PENITENCIA CREEK LIMIT OF JURISDICTION	218.00	LIMIT OF DISTRICT			JURISDICTION				

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS		EXIST CONDITIONS			FREQ OF FLOOD (YEAR)	FLOOD DAMAGES	
				1% CFS	10% CFS	Q1% CFS	CAPCTY CFS	N		1% (IN 1000$)	AVG ANN
LOWER PENITENCIA AT CONFL WITH COYOTE	0.00	28.26	0.0	7000.	4000.	3500.	11700.	.030	1000.	0.0	0.0
LOWER PENITENICIA D/S HWY. 17	4.50	28.26	0.0	7000.	4000.	3500.	14490.	.015	1000.	0.0	0.0
LOWER PENITENCIA U/S CALIF. CIRCLE AVE	13.80	28.26	0.0	6700.	3900.	2500.	13300.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S CONFL BERRYESSA CRK	38.40	28.26	0.0	6700.	3900.	2500.	6180.	.015	100.	0.0	0.0
LOWER PENITENCIA D/S CONFL BERRYESSA CRK	43.00	28.26	0.0	6700.	3900.	700.	10920.	.030	1000.	0.0	0.0
LOWER PENITENCIA U/S CONFL BERRYESSA CRK	47.30	5.16	0.0	1200.	770.	700.	4840.	.035	1000.	0.0	0.0
LOWER PENITENCIA U/S SAN ANDREAS DR	50.50	5.16	0.0	1200.	770.	700.	4840.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S TENNIS COURTS	58.00	5.16	0.0	1200.	770.	700.	4370.	.035	1000.	0.0	0.0
LOWER PENITENCIA D/S REDWOOD AVE	66.50	5.16	0.0	1200.	770.	700.	4205.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S MARYLINN DR. RBC	88.80	3.99	0.0	1200.	770.	1150.	3185.	.015	1000.	0.0	0.0
LOWER PENITENCIA U/S MARYLINN DR. RBC	89.20	3.99	0.0	1200.	770.	1150.	1793.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S CALAVERAS BLVD. RBC	111.74	3.99	0.0	1050.	675.	1300.	2184.	.015	1000.	0.0	0.0
LOWER PENITENCIA U/S CALAVERAS BLVD. RBC	113.20	3.99	0.0	1050.	675.	1300.	1538.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S SERRA WAY RBC	122.00	3.99	0.0	1050.	675.	1300.	2090.	.015	1000.	0.0	0.0
LOWER PENITENCIA U/S SERRA WAY RBC	122.60	3.99	0.0	1050.	675.	1250.	1996.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S SHOPPING CENTR CULV	124.00	3.99	0.0	1050.	675.	1150.	1960.	.015	1000.	0.0	0.0

EAST ZONE REPORT (LOWER PENITENCIA CREEK) TABLE=A6 1/15/85

CREEK		DRAIN	MEAN	DESIGN FLOWS		EXIST CONDITIONS			FREQ OF	FLOOD DAMAGES	
LOCATION	STATION	AREA SQ MI	ANNUAL PRECIP	1% CFS	10% CFS	Q1% CFS	CAPCTY CFS	N	FLOOD (YEAR)	1% (IN 1000$)	AVG ANN
LOWER PENITENCIA U/S SHOPPING CENTR CULV	124.60	3.99	0.0	1050.	675.	1050.	1905.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S JUNIPERO DR. RCB	128.00	3.99	0.0	1050.	675.	950.	1850.	.015	1000.	0.0	0.0
LOWER PENITENCIA U/S JUNIPERO DR. RCB	128.75	3.99	0.0	1050.	675.	950.	2485.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S CORNING RCB	133.50	3.99	0.0	1200.	770.	950.	1450.	.015	593.	0.0	0.0
LOWER PENITENCIA U/S CORNING RCB	134.10	3.99	0.0	1050.	675.	950.	2913.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S SYLVIA AVE RCB	135.50	3.99	0.0	1050.	675.	950.	2180.	.015	1000.	0.0	0.0
LOWER PENITENCIA U/S SYLVIA AVE RBC	136.10	3.99	0.0	1050.	675.	950.	1100.	.030	146.	0.0	0.0
LOWER PENITENCIA D/S ELMWOOD ENTR. RCB	152.15	3.99	0.0	1050.	675.	1210.	1050.	.015	100.	0.0	0.0
LOWER PENITENCIA U/S ELMWOOD ENTR. RCB	152.50	3.99	0.0	1050.	675.	1210.	1100.	.030	146.	0.0	0.0
LOWER PENITENCIA CURTIS AVE	156.40	3.99	0.0	890.	620.	890.	1100.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S PG&E R/W RCB	167.15	3.99	0.0	890.	620.	1210.	890.	.015	100.	0.0	0.0
LOWER PENITENCIA U/S PG&E R/W RCB	167.70	3.99	0.0	890.	620.	1210.	1705.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S CAPITOL AVE RBC	174.00	3.65	0.0	810.	570.	1120.	810.	.015	100.	0.0	0.0
LOWER PENITENCIA U/S CAPITOL AVE RCB	176.00	3.65	0.0	810.	570.	1160.	1000.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S MAIN ST RCB	184.50	3.65	0.0	810.	570.	1160.	980.	.015	1129.	0.0	0.0
LOWER PENITENICA CREEK U/S SPRR RCB	187.50	3.65	0.0	810.	570.	1520.	2124.	.030	1000.	0.0	0.0
LOWER PENITENCIA D/S E.PENITENCIA CONFL.	203.50	3.65	0.0	810.	570.	2150.	1030.	.030	1000.	0.0	0.0

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                                  EAST ZONE REPORT (LOWER PENITENCIA CREEK) TABLE=A6                                1/15/85

          CREEK                              DRAIN    MEAN     DESIGN FLOWS   EXIST CONDITIONS    FREQ OF    FLOOD DAMAGES
             LOCATION               STATION  AREA     ANNUAL     1%     10%    Q1%  CAPCTY   N    FLOOD      1%    AVG ANN
                                             SQ MI    PRECIP    CFS     CFS    CFS   CFS          (YEAR)     (IN 1000$)

     LOWER PENITENCIA
        D/S TRIMBLE RD.             216.00    1.95     0.0      470.    290.  1510.  1030. .030   1000.       0.0      0.0

     LOWER PENITENCIA
        LIMITS OF JURISDICTION      218.00    1.95     0.0      470.    290.  1510.  1030. .030   1000.       0.0      0.0

      TOTAL AVERAGE ANNUAL DAMAGES ($1000) =      0.
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SIERRA CREEK (4037)

Watercourse Inventory

Watershed Description

The Sierra Creek watershed comprises approximately 1.8 square miles. The watercourse is approximately 2.1 miles from the confluence with Berryessa Creek to the limit of District jurisdiction. Sierra Creek is located within the City of San Jose, and unincorporated areas of Santa Clara County. Channel characteristics on Sierra Creek are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

Sierra Creek is considered to have low quality habitat. Sierra Creek is not used as a recharge facility, and includes no developed recreation facilities. A description and a summary of environmental conditions, and multipurpose uses are given in Tables A3 and A4 respectively.

Erosion and Sediment

There is one reach with observed erosion greater than one foot on Sierra Creek. The reach begins at the confluence with Berryessa Creek and extends upstream to Valhalla Drive. Tractive force analysis indicates that there are potentially erosive velocities at Knights Bridge Road, and from Hostetter Road upstream to Sierraville Avenue. A summary of observed and potential erosion is given in Table A5.

Flood Damage Potential

One Percent Flooding

The channel upstream of the District limit of jurisdiction is inadequate to contain the design 1% flowrate of 360 cfs. A south bank spill (120 cfs) occurs near Burgandy Drive (about 0.13 miles upstream of the District's limit of jurisdiction). This spill sheetflows west through residential areas at a depth of less than one foot, combining near Morrill Avenue with spill sheetflow from Upper Penitencia Creek.

Sierra Creek is in a pipe from the District limit of jurisdiction (Station 111+00) upstream of Piedmont Road to Mauna Kea Lane (Station 72+00). The pipe has a capacity of 190 cfs. During periods of high runoff the inlet capacity may be further reduced by debris. Flow in excess of the pipe capacity travels overland to the west combining with a Crosley Creek spill of 170 cfs. This combined spill enters Sierra Creek just upstream of the confluence with Berryessa Creek. The area affected by the shallow flooding (less than one foot) contains single family residences and one public school.

Downstream of Mauna Kea Lane the channel has adequate capacity to pass the 1% design flow. Between Mauna Kea Lane and the Sierraville footbridge (Station 63+00) the 1% design channel flowrate increases from 360 cfs to 460 cfs due to local inflows. Between Hostetter Road and Knights Bridge Road the 1% design channel flowrate increases again due to local inflow from 460 cfs to 550 cfs. At the confluence with Berryessa Creek, a 1% design flowrate of 550 cfs is contained in the channel.

A summary of channel capacities is given in Table A6.

Flooding Damages

The 1% flood event would cause estimated damages of $1.0 million resulting from shallow flooding of residential areas. Average annual damage by reach and potential 1% flood damage is given in Tables A6 and A7 respectively. Note that Table A7 includes floodwaters of less than one foot.

Remedial Measures

Flood Control Elements

Capacity in addition to that of the existing 0.73 miles of RCP will be required to provide 1% flood protection on Sierra Creek downstream of the limit of District jurisdiction. A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

1. Lower Reach (Station 72+00 to Station 91+64) A 54-inch RCP is proposed for this reach. The pipe would run parallel to the existing 54/42-inch RCP. The proposed pipe would tie into the existing outfall at Mauna Kea Lane (Station 72-00).

2. Middle Reach (Station 91+64 to Station 97+62) A 66-inch RCP is proposed for this reach. The pipe would run parallel to the existing 42-inch RCP.

3. Upper Reach (Station 97+62 to Station 111+00) A 60-inch RCP is proposed for this reach. The pipe would run parallel to the existing 36-inch RCP. The proposed pipe would tie into a new combined intake structure. The new intake structure would replace the existing intake structure which is located at Station 111+00, and is the limit of District jurisdiction.

It is proposed that a sediment basin be constructed by the City of San Jose directly upstream of the intake structure. The proposed sediment basin would have an average depth of 24 feet and an approximate length of 310 feet.

Cost Estimates

The total cost of the flood control elements is estimated at $1,073,500. Table A9 gives a summary of the construction costs for the remedial flood control elements proposed on Sierra Creek.

Funding

A breakdown by reach of possible funding sources is given in Table A10.

EAST ZONE REPORT (SIERRA CREEK) TABLE-A1

1/14/85

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
SIERRA CREEK	CONFL.W/ BERRYESSA CR	0.00	11.0	0.0	435.	0.025	SACKED CONCRETE RIPRAP	6/67
SIERRA CREEK	U/S BERRYESSA CR CONFL	0.44	6.0	1.5	435.	0.030	EXCAVATED EARTH	6/67
SIERRA CREEK	U/S VALHALLA DR.	13.00	6.0	1.5	435.	0.030	EXCAVATED EARTH	6/67
SIERRA CREEK	D/S KNIGHTSBRIDGE RCB	15.15	12.0	6.0	435.	0.013	BOX CULVERT	6/67
SIERRA CREEK	U/S KNIGHTSBRIDGE RCB	15.85	6.0	1.5	435.	0.030	EXCAVATED EARTH	6/67
SIERRA CREEK	D/S HOSTETTER RCB	28.50	12.0	6.0	440.	0.015	BOX CULVERT	6/67
SIERRA CREEK	U/S HOSTETTER RCB	29.60	6.0	1.5	440.	0.030	EXCAVATED EARTH	6/67
SIERRA CREEK	SIERRAVILLE AVE	44.00	6.0	1.5	440.	0.030	EXCAVATED EARTH	6/67
SIERRA CREEK	U/S SIERRAVILLE AVE	61.00	4.0	1.5	440.	0.030	EXCAVATED EARTH	6/67
SIERRA CREEK	MAUNA KEA LN	72.45	4.5	0.0	240.	0.015	PIPE	6/67
SIERRA CREEK	PIEDMONT HILLS S.HIGH	84.00	3.5	0.0	240.	0.015	PIPE	6/67
SIERRA CREEK	D/S PIEDMONT RD. RCB	97.50	3.0	0.0	240.	0.015	PIPE	6/67
SIERRA CREEK	U/S PIEDMONT RD. RCB	110.99	3.0	0.0	240.	0.015	PIPE	6/67
SIERRA CREEK	LIMIT OF JURISDICTION	111.00	LIMIT OF JURISDICTION					

```
                    EAST ZONE REPORT (SIERRA CREEK) TABLE=A2                              1/14/85

                                SUMMARY OF CHANNEL TYPES


                 THERE ARE     0.73  MILES OF   PIPE

                 THERE ARE     0.03  MILES OF   BOX CULVERT

                 THERE ARE     0.01  MILES OF   SACKED CONCRETE RIPRAP

                 THERE ARE     1.33  MILES OF   EXCAVATED  EARTH


                 TOTAL         2.10  MILES
```

CHANNEL ENVIRONMENTAL CONDITIONS

			HABITAT TYPE								MULTIPURPOSES	
CREEK	LOCATION	STATION	NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOODLAND	RIPARIAN	VEGETATIVE QUANTITY	HABITAT QUALITY	GW RECHG	RECREATION
SIERRA CREEK	BERRYESSA CREEK	0.00				X			SPARSE	LOW		
DOMINANT SPECIES: ANNUAL GRASSES, DALLIS GRASS, SWEET FENNEL, WEEDS												
SIERRA CREEK	CURVE AT MORRILL	40.00				X			SPARSE	LOW		
DOMINANT SPECIES: SWEET FENNEL, DALLIS GRASSES, WINTER ANNUAL GRASSES & WEEDS												
SIERRA CREEK	CRATER LANE	59.00				X			MODERATE	LOW		
DOMINANT SPECIES: DALLIS GRASSES, WINTER ANNUAL GRASSES, WEEDS, ICE PLANT												
SIERRA CREEK	D/S MAUNA KEA LN	70.00				X			MODERATE	LOW		
SIERRA CREEK		111.00	LIMITS OF JURISDICTION									

```
                        EAST ZONE REPORT (SIERRA CREEK) TABLE=A4                                  1/14/85


                       SUMMARY OF CHANNEL ENVIRONMENTAL CONDITIONS


                    THIS SUMMARY INCLUDES A TOTAL OF      2.10  MILES  OF CHANNEL.

                    HABITAT TYPES:

                       THERE ARE     2.10  MILES OF GRASSLAND HABITAT

                       THERE ARE     1.12  MILES WITH SPARSE VEGETATION

                       THERE ARE     0.98  MILES WITH MODERATE VEGETATION

                       THERE ARE     2.10  MILES WITH LOW QUALITY HABITAT
```

EAST ZONE REPORT (SIERRA CREEK) TABLE-A5 1/14/85

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
SIERRA CREEK CONFL.W/ BERRYESSA CR	0.00				NON-ERODING REACH				
SIERRA CREEK U/S BERRYESSA CR CONFL	0.44	3.3	2.4	6.8	1.0	0.009	0.145	1.0	1.0
SIERRA CREEK U/S VALHALLA DR.	13.00	3.3	4.6	4.6	1.0	0.037	0.100	1.0	1.0
SIERRA CREEK D/S KNIGHTSBRIDGE RCB	15.15				NON-ERODING REACH				
SIERRA CREEK U/S KNIGHTSBRIDGE RCB	15.85	1.0	5.9	4.5	2.0	0.063	0.098	1.0	2.0
SIERRA CREEK D/S HOSTETTER RCB	28.50				NON-ERODING REACH				
SIERRA CREEK U/S HOSTETTER RCB	29.60	3.2	4.9	4.6	2.0	0.042	0.099	1.0	2.0
SIERRA CREEK SIERRAVILLE AVE	44.00	3.2	11.2	5.7	2.0	0.248	0.128	2.0	2.0
SIERRA CREEK U/S SIERRAVILLE AVE	61.00	3.2	10.6	5.9	2.0	0.226	0.138	2.0	2.0
SIERRA CREEK MAUNA KEA LN	72.45				NON-ERODING REACH				
SIERRA CREEK PIEDMONT HILLS S.HIGH	84.00				NON-ERODING REACH				
SIERRA CREEK D/S PIEDMONT RD. RCB	97.50				NON-ERODING REACH				
SIERRA CREEK U/S PIEDMONT RD. RCB	110.99				NON-ERODING REACH				
SIERRA CREEK LIMIT OF JURISDICTION	111.00	LIMIT OF DISTRICT			JURISDICTION				

EAST ZONE REPORT (SIERRA CREEK) TABLE-A6 1/15/85

CAPACITY/FLOOD SUMMARY

CREEK LOCATION	STATION	DRAIN AREA SQ MI	MEAN ANNUAL PRECIP	DESIGN FLOWS 1% CFS	10% CFS	EXIST CONDITIONS Q1% CFS	CAPCTY CFS	N	FREQ OF FLOOD (YEAR)	FLOOD DAMAGES 1% (IN 1000$)	AVG ANN
SIERRA CREEK AT CONFL WITH BERRYESSA	0.00	1.77	0.0	550.	320.	435.	1138.	.025	1000.	0.0	0.0
SIERRA CREEK U/S CONFL BERRYESSA	0.44	1.77	0.0	550.	320.	435.	656.	.030	331.	0.0	0.0
SIERRA CREEK D/S KNIGHTS BRIDGE RBC	10.00	1.77	0.0	550.	320.	435.	763.	.030	1000.	0.0	0.0
SIERRA CREEK D/S KNIGHTS BRIDGE RBC	15.15	1.77	0.0	550.	320.	435.	540.	.013	100.	0.0	0.0
SIERRA CREEK U/S KNIGHTS BRIDGE RD	15.85	1.77	0.0	550.	320.	435.	763.	.030	1000.	0.0	0.0
SIERRA CREEK D/S HOSTETTER RD	27.51	1.47	0.0	460.	270.	440.	727.	.030	1000.	0.0	0.0
SIERRA CREEK D/S HOSTETTER RD RBC	28.50	1.47	0.0	460.	270.	440.	760.	.015	1000.	0.0	0.0
SIERRA CREEK U/S HOSTETTER RD RBC	29.60	1.47	0.0	460.	270.	440.	727.	.030	1000.	0.0	0.0
SIERRA CREEK U/S SIERRAVLL FTBRIDGE	56.71	1.47	0.0	460.	270.	440.	524.	.030	205.	0.0	0.0
SIERRA CREEK U/S SIERRAVLL FTBRIDGE	61.00	1.47	0.0	460.	270.	440.	485.	.030	142.	0.0	0.0
SIERRA CREEK D/S MAUNA KEA(54" RCP)	72.45	1.47	0.0	360.	140.	240.	190.	.015	16.	0.0	0.0
SIERRA CREEK U/S MAUNA KEA(42" RCP)	79.00	1.47	0.0	360.	140.	240.	120.	.015	8.	0.0	0.0
SIERRA CREEK D/S PIEDMONT(42" RCP)	84.00	0.82	0.0	360.	140.	240.	120.	.015	8.	0.0	0.0
SIERRA CREEK U/S PIEDMONT(36" RCP)	97.50	0.82	0.0	360.	140.	240.	80.	.015	4.	388.5	17.8
SIERRA CREEK U/S SIERRA (END 36"RCP)	110.99	0.82	0.0	360.	140.	240.	80.	.015	4.	625.0	28.6
SIERRA CREEK LIMIT OF JURISDICTION	111.00	0.50	LIMIT OF JURISDICTION								

TOTAL AVERAGE ANNUAL DAMAGES ($1000) = 46.

```
                    EAST ZONE REPORT (SIERRA CREEK) TABLE-A7                                     1/17/85

                              S U M M A R Y

                    DAMAGES-INSURANCE-FLOODPROOFING-ACQUISITION

      REALESTATE INDEX= 118.0

                              AREA       NUMBER      1%FLOOD      ANNUAL      FLOOD       FLOODPLAIN
      LAND USE               FLOODED       OF        DAMAGES     INSURANCE   PROOFING    ACQUISITION
                              ACRES      BLDGS       (1000$)    (1000$/YR)   (1000$)     (1000$)


        SF RESIDENT            194.       892.         319.        382.5      8924.       121053.
        APT RESID               14.        98.         223.         34.9       140.        13077.
        MOBILE HOME              0.         0.           0.          0.0         0.            0.
        COMMERCIAL               9.         2.          76.          6.8       177.         6874.
        INDUSTRIAL              13.         3.         230.          9.5       301.         6790.
        SCHLS,PUBLC             32.        14.         160.         44.6       422.        21700.
        OPEN IMPRVD             32.         0.           7.          0.0         0.         5264.
        AGRICULTURE              0.         0.           0.          0.0         0.            0.
        VACLND/S.PND            11.         0.           0.          0.0         0.         1810.


        TOTAL                  305.      1009.        1014.        478.2      9964.       176568.
```

EAST ZONE REPORT (SIERRA CREEK) TABLE-A8 1/14/85

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGU-LATION	DIS-COURAGE-MENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCT-URE	ENLARGE CULVERT
0.00	XXX	XXX										
0.44	XXX	XXX										
10.00	XXX	XXX										
13.00	XXX	XXX										
15.15	XXX	XXX	XXX	XXX	XXX							XXX
15.85	XXX	XXX										
27.51	XXX	XXX										
28.50	XXX	XXX										
29.60	XXX	XXX										
40.00	XXX	XXX										
44.00	XXX	XXX										
56.71	XXX	XXX										
59.00	XXX	XXX										
61.00	XXX	XXX										
70.00	XXX	XXX										
72.45	XXX	XXX	XXX	XXX	XXX							
79.00	XXX	XXX	XXX	XXX	XXX							
84.00	XXX	XXX	XXX	XXX	XXX							
97.50	XXX	XXX	XXX	XXX	XXX	XXX						
110.99	XXX	XXX	XXX	XXX	XXX	XXX						

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                                              EAST ZONE REPORT (SIERRA CREEK) TABLE=A8                                  1/14/85

                                                         S U M M A R Y

                                        FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION     CONST    WATERSHED   CONST    INSTALL   EMERGENCY  INSUR     **DOWNSTREAM CONFLICTS***     **CAPACITY < **
            BYPASS   TREATMENT   DAM/     SEDIMENT  PROCEDURE  REGUL     INDUCE  RECHARGE   ENVIRON    DESIGN    EXIST
                                RESERV    BASIN     /WARNING   MANAG     FLOOD   /EROSION   QUALITY     Q1%       Q1%

  0.00
  0.44
 10.00
 13.00
 15.15                                                          XXX                                     XXX
 15.85
 27.51
 28.50
 29.60
 40.00
 44.00
 56.71
 59.00
 61.00
 70.00
 72.45                                                          XXX       XXX                           XXX       XXX
 79.00                                                          XXX       XXX                           XXX       XXX
 84.00                                                          XXX       XXX                           XXX       XXX
 97.50                            XXX                 XXX       XXX       XXX                           XXX       XXX
110.99                            XXX                 XXX       XXX       XXX                           XXX       XXX

   ELEMENTS (I.E. PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF SIERRA CREEK
                 BETWEEN   111.00 AND   110.99

            REGULATION TO PREVENT OCCURANCE OF PROBLEM
            DISCOURAGEMENT OF INAPPROPRIATE LAND USES
```

EAST ZONE REPORT (SIERRA CREEK) TABLE-A9 12/13/84

-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000	ACRE	4	$8,000
EARTHWORK				
-Sediment Basin	$5	C.Y.	45000	$225,000
CHANNEL LINING				
-66 inch RCP	$138	L.F.	1338	$184,644
-60 inch RCP	$125	L.F.	598	$74,750
-54 inch RCP	$112	L.F.	1964	$219,968
-SUBTOTAL-				$712,362
MOBILIZATION (5%)				$35,618
CONSTRUCTION CONTINGENCES (15%)				$106,854
-TOTAL CONSTRUCTION COSTS-				$854,834
ENGINEERING, ADMINISTRATION & INSPECTION (18%)				$153,870
IGHT OF WAY	$30,000	ACRE	2.16	$64,800

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $1,073,505

FOWLER CREEK (4044)

Watercourse Inventory

Watershed Description

Fowler Creek has a watershed of 2.8 square miles. Fowler Creek extends 2.9 miles from its confluence with Thompson Creek to the limit of District jurisdiction. Fowler Creek is located in the City of San Jose and unincorporated areas of Santa Clara County. Channel characteristics are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

At the base of the foothills Fowler Creek supports approximately 2,000 feet of high quality woodland and riparian habitat. Fowler Creek is not used as a recharge facility and includes no developed recreational facilities. Environmental conditions are described and summarized in Tables A3 and A4 respectively.

Erosion and Sediment

No significant erosion or sediment problems have been observed on Fowler Creek. A summary of observed and potential erosion is given in Table A5.

Flood Damage Potential

One Percent Flooding

Except for the lower 2,000 feet, all of Fowler Creek, below the canyons, appears to be inadequate. A flow of 590 cfs is expected in the upstream channel (Station 70+00±) during a 1% event. As channel definition disappears, flooding spreads out between Fowler Road and Aborn Road. On the north side of the channel, floodwaters (300 cfs) are diverted to Aborn Road by a low berm. These spill flows continue across Aborn Road to White Road. Most of the floodwaters enter Thompson Creek (280 cfs) and the remainder continues north on White Road. On the south side of the channel the floodwaters are intercepted by a channel and berm, and diverted into a 96-inch RCP.

Flooding Damages

Presently the areas flooded by Fowler Creek are nearly all agricultural. A fire station at the corner of Aborn and White Roads is subject to shallow flooding from Fowler Creek. Some houses along Aborn and White Roads are subject to flooding.

A breakdown of average annual damage by reach and 1% flood damage is given in Tables A6 and A7 respectively. Note that Table A7 includes floodwaters of less than one foot.

Remedial Measures

Flood Control Elements

Fowler Creek will be placed in pipe as development occurs adjacent to the creek. A breakdown by stations showing flood control alternatives for all reaches is given in Table A8.

The 1973 General Plan called for pipe upstream of Station 27+00. A sediment basin is proposed at the limit of District jurisdiction above the inlet to the pipe. It is also proposed that the south branch of Fowler Creek be placed in pipe and realigned. A sediment basin is proposed at the limit of District jurisdiction near the inlet to the pipe.

Cost Estimates

The total cost of the flood control elements is estimated at $2.1 million. Annual operation and maintenance costs are estimated at $14,500. Table A9 gives a summary of the construction costs for the remedial flood control elements proposed on Fowler Creek.

Funding

Remedial flood control measures will be constructed as development occurs adjacent to Fowler Creek. A breakdown by reach of potential funding sources is given in Table A10.

EAST ZONE REPORT (FOWLER CREEK) TABLE-A1

12/13/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
FOWLER CREEK	CONFL.W/ THOMPSON CR	0.00	8.0	0.0	620.	0.013	PIPE	0/ 0
FOWLER CREEK	U/S DEVELOPMENT	20.70	2.0	2.0	620.	0.035	NATURAL - UNMODIFIED	0/ 0
FOWLER CREEK	LIMIT OF JURISDICTION	150.30	LIMIT OF JURISDICTION					

```
                          EAST ZONE REPORT (FOWLER CREEK) TABLE-A2                                        12/13/84

                                      SUMMARY OF CHANNEL TYPES


                             THERE ARE      0.39  MILES OF    PIPE

                             THERE ARE      2.45  MILES OF    NATURAL - UNMODIFIED


                             TOTAL          2.85  MILES
```

EAST ZONE REPORT (FOWLER CREEK) TABLE-A3 12/13/84

CHANNEL ENVIRONMENTAL CONDITIONS

			HABITAT TYPE								MULTIPURPOSES	
CREEK	LOCATION	STATION	NO SIG HABITAT	FRESH MARSH	SALT MARSH	GRASS	WOOD-LAND	RIPAR-IAN	VEGETA-TIVE QUANTITY	HABITAT QUALITY	GW RECHG	RECRE-ATION
FOWLER CREEK	COYOTE CREEK	0.00				X			SPARSE	LOW		
DOMINANT SPECIES: HAY ACREAGE, GRAINS, VINEYARDS (GRAPES), WALNUTS												
FOWLER CREEK	FARM ROAD	62.50					X		ABUNDANT	HIGH		
DOMINANT SPECIES: LIVE OAKS, ELDERBERRY, WEEDS												
FOWLER CREEK	FARM ROAD	74.00					X	X	MODERATE	HIGH		
DOMINANT SPECIES: CALIFORNIA BUCKEYE, VALLEY OAK, BLUE ELDERBERRY												
FOWLER CREEK	END OF TREES	80.00				X			MODERATE	GOOD		
DOMINANT SPECIES: COYOTE BRUSH, SAGEBRUSH, MILK THISTLE												
FOWLER CREEK	END OF BRUSH	82.50				X			SPARSE	LOW		
DOMINANT SPECIES: RYE GRASS, HOREHOUND, MUGWORT												
FOWLER CREEK	BROKEN BRIDGE	91.00				X	X		SPARSE	LOW		
DOMINANT SPECIES: RYE GRASS, MUGWORT												
FOWLER CREEK	LIMIT OF JURISDICT	150.30	LIMITS OF JURISDICTION									

```
                    SUMMARY OF CHANNEL ENVIRONMENTAL CONDITIONS

               THIS SUMMARY INCLUDES A TOTAL OF      2.85  MILES  OF CHANNEL.

               HABITAT TYPES:

                    THERE ARE      2.52  MILES OF GRASSLAND HABITAT

                    THERE ARE      1.45  MILES OF OAK WOODLAND HABITAT

                    THERE ARE      0.11  MILES OF RIPARIAN HABITAT

               QUANTITY OF VEGETATION:

                    THERE ARE      2.47  MILES WITH SPARSE VEGETATION

                    THERE ARE      0.16  MILES WITH MODERATE VEGETATION

                    THERE ARE      0.22  MILES WITH ABUNDANT VEGETATION

               QUALITY OF HABITAT:

                    THERE ARE      2.47  MILES WITH LOW QUALITY HABITAT

                    THERE ARE      0.05  MILES WITH GOOD QUALITY HABITAT

                    THERE ARE      0.33  MILES WITH HIGH QUALITY HABITAT
```

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOWABLE VELOCITY ALLOW FT/SEC	ALLOWABLE VELOCITY CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	TRACTIVE FORCE ALLOW LB/SF	TRACTIVE FORCE CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
FOWLER CREEK CONFL.W/ THOMPSON CR	0.00				NON-ERODING REACH				
FOWLER CREEK U/S DEVELOPMENT	20.70	3.2	4.2	3.1	2.0	0.089	0.049	2.0	2.0
FOWLER CREEK LIMIT OF JURISDICTION	150.30	LIMIT OF DISTRICT			JURISDICTION				

```
                                        EAST ZONE REPORT (FOWLER CREEK) TABLE=A6                                         1/15/85

                                                      CAPACITY/FLOOD SUMMARY

           CREEK                              DRAIN    MEAN     DESIGN FLOWS   EXIST CONDITIONS    FREQ OF    FLOOD DAMAGES
             LOCATION                STATION  AREA    ANNUAL     1%     10%     Q1%  CAPCTY   N     FLOOD      1%   AVG ANN
                                              SQ MI   PRECIP    CFS     CFS     CFS   CFS          (YEAR)     (IN 1000$)

       FOWLER CREEK
          U/S CONFL WITH THOMPSON       0.00   2.78     0.0      620.    320.    620.   590. .013     74.        0.0      0.0

       FOWLER CREEK
          U/S 96" PIPE                 20.70   2.78     0.0      620.    320.    620.   100. .035      2.      127.9      6.4

       FOWLER CREEK
          CONF. SOUTH BRANCH           88.00   1.44     0.0      410.    210.    410.   410. .035    100.        0.0      0.0

       FOWLER CREEK
          LIMITS OF JURISDICTION      150.30   0.50     LIMIT OF JURISDICTION

        TOTAL AVERAGE ANNUAL DAMAGES ($1000) =        6.
```

EAST ZONE REPORT (FOWLER CREEK) TABLE-A7 12/13/84

SUMMARY

DAMAGES-INSURANCE-FLOODPROOFING-ACQUISITION

REALESTATE INDEX= 118.0

LAND USE	AREA FLOODED ACRES	NUMBER OF BLDGS	1%FLOOD DAMAGES (1000$)	ANNUAL INSURANCE (1000$/YR)	FLOOD PROOFING (1000$)	FLOODPLAIN ACQUISITION (1000$)
SF RESIDENT	14.	63.	22.	25.9	626.	8186.
APT RESID	0.	0.	0.	0.0	0.	0.
MOBILE HOME	0.	0.	0.	0.0	0.	0.
COMMERCIAL	11.	8.	94.	34.9	198.	8555.
INDUSTRIAL	0.	0.	0.	0.0	0.	0.
SCHLS,PUBLC	0.	0.	0.	0.0	0.	0.
OPEN IMPRVD	0.	0.	0.	0.0	0.	0.
AGRICULTURE	303.	0.	12.	0.0	0.	18874.
VACLND/S,PND	0.	0.	0.	0.0	0.	0.
TOTAL	328.	70.	128.	60.8	823.	35615.

SUMMARY

FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

STATION	REGU-LATION	DIS-COURAGE-MENT	ACQUIRE WHOLE FLDPLN	REMOVAL OF STRUCT	FLOOD PROOF STRUCT	FLOOD WALLS	LEVEES/ MODIFY FLDPLN	CONCRETE LINE CHANNEL	GABION OR ROCK	EARTH LINE CHANNEL	DROP STRUCT-URE	ENLARGE CULVERT
0.00	XXX	XXX	XXX	XXX	XXX							
20.70	XXX	XXX	XXX	XXX	XXX							
62.50	XXX	XXX	XXX	XXX	XXX							
74.00	XXX	XXX	XXX	XXX	XXX							
80.00	XXX	XXX	XXX	XXX	XXX							
82.50	XXX	XXX	XXX	XXX	XXX							
88.00	XXX	XXX										
91.00	XXX	XXX										

```
                                                       EAST ZONE REPORT (FOWLER CREEK) TABLE-A8                                  12/13/84

                                                                  S U M M A R Y

                                                FEASIBLE FLOOD CONTROL ALTERNATIVES FOR EACH STATION

        STATION     CONST    WATERSHED   CONST     INSTALL   EMERGENCY  INSUR     **DOWNSTREAM CONFLICTS***      **CAPACITY < **
                    BYPASS   TREATMENT   DAM/      SEDIMENT  PROCEDURE  REGUL     INDUCE  RECHARGE   ENVIRON     DESIGN    EXIST
                                         RESERV    BASIN     /WARNING   MANAG     FLOOD   /EROSION   QUALITY      Q1%       Q1%

           0,00                                                          XXX       XXX                            XXX       XXX
          20,70                                                          XXX       XXX                            XXX       XXX
          62,50                                                          XXX       XXX                 XXX        XXX       XXX
          74,00                                                          XXX       XXX                 XXX        XXX       XXX
          80,00                                                          XXX       XXX                 XXX        XXX       XXX
          82,50                                                          XXX       XXX                            XXX       XXX
          88,00
          91,00


           ELEMENTS (I.E. PROBLEM SOLUTIONS) THAT ARE APPLICABLE TO ALL REACHES OF FOWLER CREEK
                         BETWEEN   150,30 AND    91,00

                    REGULATION TO PREVENT OCCURANCE OF PROBLEM
                    DISCOURAGEMENT OF INAPPROPRIATE LAND USES
```

EAST ZONE REPORT (FOWLER CREEK) TABLE-A9 12/13/84
REACH 1 (THOMPSON CREEK TO LIMIT OF JURISDICTION)
(STATION 0+00 TO STATION 150+30)
-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	6.12	$12,240
EARTHWORK				
-Sediment Basin	$5.00	C.Y.	2200	$11,000
CHANNEL LINNING				
-78 inch RCP	$162.00	L.F.	630	$102,060
-72 inch RCP	$150.00	L.F.	5580	$837,000
-66 inch RCP	$138.00	L.F.	138	$19,044
-54 inch RCP	$112.00	L.S.	112	$12,544
-SUBTOTAL-				$993,888
MOBILIZATION (5%)				$49,694
CONSTRUCTION CONTINGENCES (10%)				$99,389
-TOTAL CONSTRUCTION COSTS-				$1,142,971
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$205,735
RIGHT OF WAY	$30,000	ACRE	6.12	$183,600

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $1,532,306

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

EAST ZONE REPORT (FOWLER CREEK) TABLE-A9 12/13/84
REACH 2 (SOUTH BRANCH)

-COST ESTIMATES SUMMARY-

ITEM	UNIT COST	UNIT	QUANTITY	AMOUNT
CLEARING & GRUBBING	$2,000.00	ACRE	2.98	$5,960
EARTHWORK				
-Sediment Basin	$5.00	C.Y.	1920	$9,600
CHANNEL LINNING				
-60 inch RCP	$125.00	L.F.	1613	$201,625
-45 inch RCP	$100.00	L.F.	897	$89,700
-42 inch RCP	$92.00	L.S.	500	$46,000
-SUBTOTAL-				$352,885
MOBILIZATION (5%)				$17,644
CONSTRUCTION CONTINGENCES (10%)				$35,289
-TOTAL CONSTRUCTION COSTS-				$405,818
ENGINEERING, ADMINISTRATION, & INSPECTION (18%)				$73,047
IGHT OF WAY	$30,000	ACRE	2.98	$89,400

BASELINE DATE (11/84) INDEX= 5122.03 PROJECT COST = $568,265

ENR CONSTRUCTION COST INDEX (SAN FRANCISCO)

EAST PENITENCIA CHANNEL (4049)

Watercourse Inventory

Watershed Description

The East Penitencia Channel watershed comprises approximately 2.3 square miles. The watercourse is approximately 0.7 miles from the confluence with Lower Penitencia Creek to the limit of District jurisdiction. East Penitencia Channel is an improved channel constructed in 1973. East Penitencia Channel is located within the City of San Jose. Channel characteristics on East Penitencia Channel are listed and summarized in Tables A1 and A2 respectively.

Environment and Multipurpose Use

East Penitencia Channel is a trapezoidal earth channel which revegetates naturally between maintenance operations. East Penitencia Channel is not used as a recharge facility, and includes no developed recreation facilities. Tables A3 and A4 are not included in Appendix A.

Erosion and Sediment

There are no reaches with observed erosion greater than one foot on East Penitencia Channel. A summary of observed and potential erosion is given in Table A5.

Flood Potential

One Percent Flooding

East Penitencia Creek has sufficient capacity to pass the 1% flow from its own watershed.

The area adjacent to the channel is flooded by spills from Berryessa and Upper Penitencia Creeks which drain into East Penitencia Channel. Local inflow enters the channel at Trimble Road (350 cfs). At Montague Expressway spill flow enters the channel producing a flow rate of 1,800 cfs. The spill is from Berryessa Creek overbanking on the west side just south of Montague Expressway, combined with spill flow from Upper Penitencia Creek flowing down Capitol Avenue.

Remedial Measures

A summary of channel capacities is given in Table A6. Tables A7, A8, and A9 are not included in Appendix A.

Funding

Table A10 illustrates how potential funding sources can be identified.

EAST ZONE REPORT (EAST PENITENCIA CREEK) TABLE=A1 12/13/84

CHANNEL DESCRIPTIONS

CREEK	LOCATION	STATION	BOTTOM WIDTH	SIDE SLOPE	EXIST Q1%	EXIST N	CHANNEL TYPE	DATE CONST
EAST PENITENCIA CREEK	CONFL.W/ L.PENITENCIA	0.00	3.0	1.8	1080.	0.030	EXCAVATED EARTH	7/73
EAST PENITENCIA CREEK	U/S PENITENCIA CR CONFL	2.00	3.0	1.8	1080.	0.030	EXCAVATED EARTH	7/73
EAST PENITENCIA CREEK	D/S MONTAGUE EXPY RCB	15.00	10.0	6.0	1080.	0.015	BOX CULVERT	7/73
EAST PENITENCIA CREEK	U/S MONTAGUE EXPY RCB	16.15	7.0	2.0	340.	0.030	EXCAVATED EARTH	7/73
EAST PENITENCIA CREEK	D/S WESTERN PACIFIC RR	25.00	6.0	1.0	340.	0.030	EXCAVATED EARTH	7/73
EAST PENITENCIA CREEK	LIMIT OF JURISDICTION	36.00	LIMIT OF JURISDICTION					

```
                                   EAST ZONE REPORT (EAST PENITENCIA CREEK) TABLE-A2                              12/13/84


                                             SUMMARY OF CHANNEL TYPES


                                   THERE ARE     0.02  MILES OF   BOX CULVERT

                                   THERE ARE     0.66  MILES OF   EXCAVATED  EARTH



                                   TOTAL         0.68  MILES
```

EROSION POTENTIAL

CREEK LOCATION	STATION	OBSERVED EROSION CLASS (1.0-4.0)	ALLOWABLE VELOCITY ACTUAL FT/SEC	ALLOW FT/SEC	CLASS (1-4)	TRACTIVE FORCE ACTUAL LB/SF	ALLOW LB/SF	CLASS (1-4)	EROSION POTENTIAL CLASS (1.0-4.0)
EAST PENITENCIA CREEK CONFL.W/ L.PENITENCIA	0.00	3.2	2.4	5.0	1.0	0.009	0.115	1.0	1.0
EAST PENITENCIA CREEK U/S PENITENCIA CR CONFL	2.00	3.2	2.5	6.8	1.0	0.010	0.159	1.0	1.0
EAST PENITENCIA CREEK D/S MONTAGUE EXPY RCB	15.00				NON-ERODING REACH				
EAST PENITENCIA CREEK U/S MONTAGUE EXPY RCB	16.15	3.1	2.5	6.4	1.0	0.011	0.132	1.0	1.0
EAST PENITENCIA CREEK D/S WESTERN PACIFIC RR	25.00	3.2	8.2	5.9	2.0	0.127	0.135	1.0	2.0
EAST PENITENCIA CREEK LIMIT OF JURISDICTION	36.00	LIMIT OF DISTRICT			JURISDICTION				

```
                                   EAST ZONE REPORT (EAST PENITENCIA CREEK) TABLE=A6                                     1/15/85

                                                  CAPACITY/FLOOD SUMMARY

        CREEK                                DRAIN    MEAN     DESIGN FLOWS    EXIST CONDITIONS    FREQ OF     FLOOD DAMAGES
          LOCATION                 STATION   AREA     ANNUAL     1%     10%     Q1%  CAPCTY   N     FLOOD       1%    AVG ANN
                                             SQ MI    PRECIP    CFS     CFS     CFS    CFS          (YEAR)     (IN 1000$)

     EAST PENITENCIA
        U/S CONFL WITH L.PEN         0.00     1.70     0.0      340.    280.   1080.   500. .030   1000.         0.0      0.0

     EAST PENITENCIA CR
        D/S MONTAGUE EXPWY          15.00     1.60     0.0      340.    280.   1080.   701. .015   1000.         0.0      0.0

     EAST PENITENCIA CR
        U/S MONTAGUE EXPWY          16.15     1.60     0.0      340.    280.    340.  1000. .030   1000.         0.0      0.0

     EAST PENITENCIA CR
        LIMITS OF JURISDICTION      36.00     0.50     LIMIT OF JURISDICTION

      TOTAL AVERAGE ANNUAL DAMAGES ($1000) =        0.
```

APPENDIX B

SANTA CLARA VALLEY WATER DISTRICT

APPENDIX B
(Maintenance Report)

EAST ZONE REPORT

Prepared by Predesign Division

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JANUARY 1985

DISTRICT BOARD OF DIRECTORS

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86R4937B

INTRODUCTION

The purpose of this Appendix is to:

1) Identify existing flood control facilities for which the District assumes maintenance responsibilities in the East Zone. Identify maintenance responsibilities which will result from proposed channel improvements. Project the costs associated with those responsibilities.
2) Introduce a procedure for annual inventory and ranking of flood control facilities according to the benefit of restoring the channel from its existing condition to a maintenance standard.

Current and Projected Maintenance Activities

Currenty the District actively maintains about 70 miles of flood control facilities in the East Zone. In the next ten years the unit cost of maintaining those facilities is expected to increase (Figure 1). Additional facilities will include Lower Coyote Creek, Upper Penitencia Creek bypass channels, Fisher Creek, and Thompson Creek tributaries. The total length of maintained facilities is expected to increase to 83.5 miles. Five sediment basins are expected to be constructed within the next ten years. Unit costs will increase with inflation and as channel surface area and right of way increases.

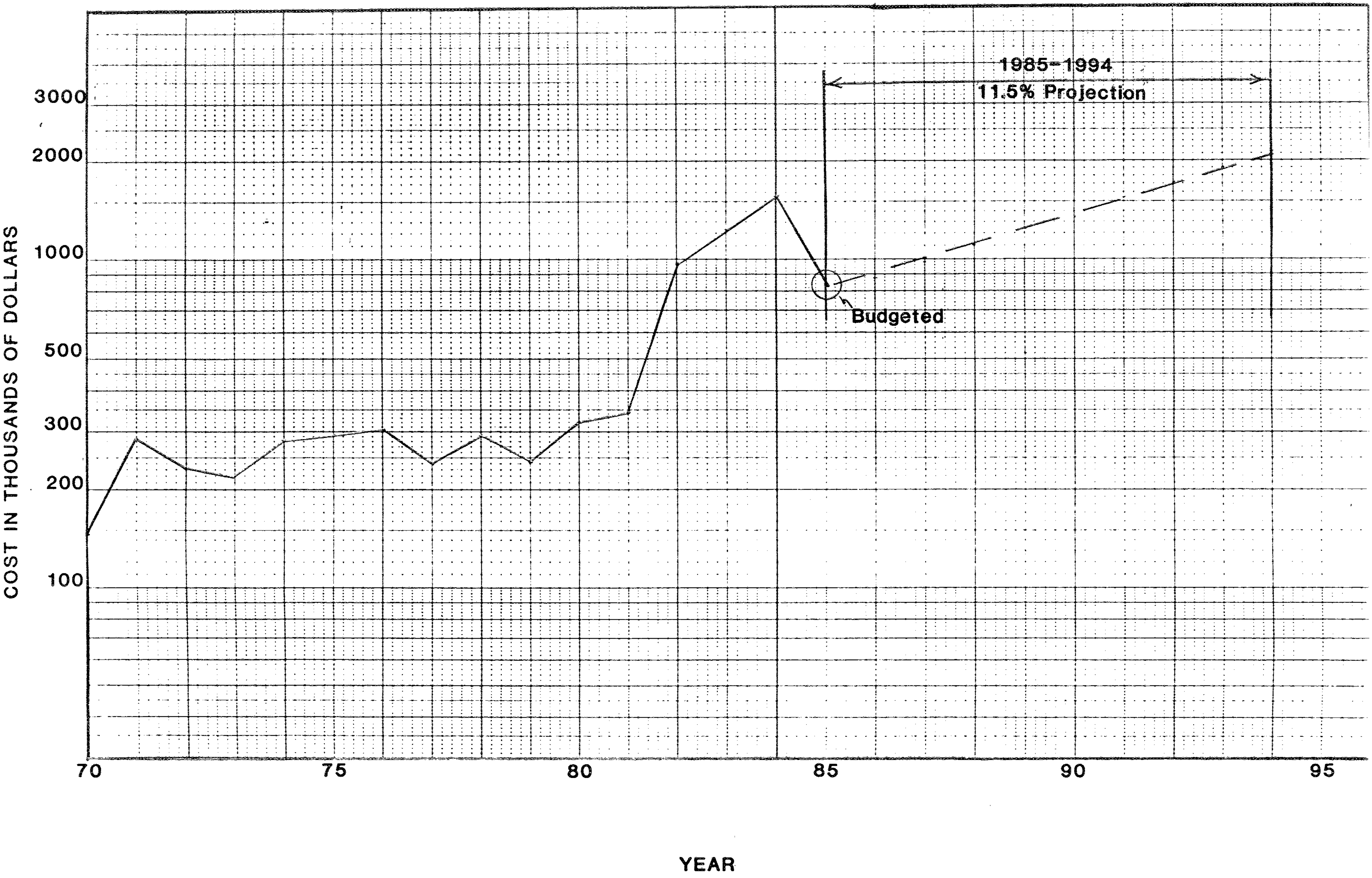
A portion of the increased unit cost of channel maintenance will be offset by the conversion of about six miles of earth channel to concrete lined channel.

An increase in maintenance costs due to new facilities construction of 16% is projected over the next ten years. This projected increase is based upon the percent increase in total miles maintained. Unit costs are projected to increase at 10% per year.

Figure 1 indicates historic and projected expenditures in the East Zone. Projected costs reflect the increases discussed above applied to a base cost of $805,000 in 1981-82. This projection was used for the benefit assessment study.

FIGURE 1

HISTORIC & PROJECTED NORMAL MAINTENANCE COSTS IN THE EAST ZONE



CHANNEL MAINTENANCE RANKING PROCEDURE

A procedure has been developed whereby channel reaches can be ranked by the potential benefit of channel maintenance. This systematic approach to channel maintenance compares existing channel conditions to optimal channel conditions and flood frequency to determine the benefits of channel maintenance. The procedure consists of a computer program which has been added to the Waterways Management Model (WWMM) and a data collection method specifically developed for this program. This system has been applied to the District's East Flood Control Zone and the results of that application are attached.

The program uses data stored in the WWMM and field data to compare the capacity, or the 1% flow depth, for a channel reach in a clean state (maintenance standard) to the capacity, or the 1% flow depth, for the channel in its existing condition. The difference in capacity is related to a change in flood frequency. The change in flood frequency is then used to calculate the decrease in average annual damages. The difference in depth is the increase in freeboard. The program uses Manning's equation to calculate these values.

Once the effects of channel maintenance are determined the maintenance program will rank the channel reaches in order of decreasing maintenance benefits. Maintenance benefits are defined as either reduction in average annual damage or increase in freeboard at the 1% flood flow rate, which would be achieved if the channel reach were restored to its maintenance standard from its existing state. Where flood damage information exists, it is always used for ranking. Where channels are generally considered adequate for existing 1% flows or were beyond the scope of past floodplain studies, no flood damage information has been developed. When damage information is not available, ranking is based upon the potential reduction in the 1% flood water surface elevation.

Channel reaches for which the benefits of maintenance are to be compared are placed in one of the six groups described in Figure 2. The channel reaches are ranked within these groups by the criteria described above. Although relative importance of each group remains subjective, it is apparent that groups 1 and 2 would include channel reaches upon which maintenance should be given high priority. These are improved facilities which are inadequate.

Implementation of this program requires a complete inventory of existing conditions (N value and sediment depth) on the channel reaches to be ranked. A systematic method for estimating Manning's N has been developed. Sediment depth can be measured at bridges where the soffit elevation is known, or preferably by attaching permanent staff gauges at channel observation stations. A prototype channel inventory form has been developed. In addition to obtaining information relative to channel capacity, a complete inventory is useful for locating other problem areas along the channel reaches.

Instructions for entering the field data into, and operating the computer program are detailed in the WWMM Users Guide. Discussion of the methods used in the computer program is included in the WWMM General Report.

Application of this procedure in the East Zone required establishing appropriate channel reaches to be compared and a complete field inventory of existing conditions. Channel reaches were determined which could be described by one existing N value and sediment depth. Approximately 200 reaches were identified in the East Zone. Once established, the reach designations will rarely require modification. The field inventory required approximately five man days in this case (60 channel miles). The time requirement should decrease with successive surveys.

FIGURE 2

CHANNEL REACH GROUPINGS FOR MAINTENANCE RANKING

Group 1 - Improved Channels, Less than 1% Flood Capacity, Unknown Flood Damages

The reaches in this group have a capacity of less than the 1% flood in their existing condition. Flood limits may not have been identified adjacent to these reaches and flood damage potentials have not been estimated. Ranked highest are those reaches where the greatest reduction in 1% water surface elevation would result if the channel was restored to its maintenance standard from its existing condition.

Group 2 - Improved Channels, Less than 1% Flood Capacity, Identified Flood Damages

The reaches in this group have a capacity of less than the 1% flood in their present state. A potential for flood damage reduction exists at each reach. Ranking refects reduction in average annual damage per mile which would result if the channel was restored to its maintenance standard from its existing condition.

Group 3 - Unimproved Channels, Less than 1% Flood Capacity, Identified Flood Damages

Same as Group 2 for unimproved channels.

Group 4 - Unimproved Channels, Less than 1% Flood Capacity, Unknown Flood Damages

Same as Group 1 for unimproved channels.

Group 5 - Improved Channels with Adequate 1% Capacity

The reaches in this group have capacity equal to or greater than the 1% flood. Ranked highest are reaches which would have in their existing condition the least freeboard during a 1% flood.

Group 6 - Unimproved Channels with Adequate 1% Capacity

Same as Group 5 for unimproved channels.

This procedure was developed to provide input for the prioritization and scheduling of channel maintenance activities. The product of this program is not intended to be an ironclad list of priorities. It should be one component of the decision-making process. The output can be used to:

1. Identify high priority areas and establish the boundaries for channel clearing projects.
2. Identify specific trouble areas such as partially obstructed culverts.
3. Identify channel sections which retain capacity even though they appear to need maintenance.
4. Record channel conditions from year to year.

Adoption of this procedure will provide many benefits to the District. The computer output identifies where the greatest maintenance benefit can be obtained and where, even though a channel may appear in need of attention, it retains 1% capacity. Utilizing this procedure will help ensure that maintenance resources are directed to the areas where they are needed most. The output will also serve as support for addressing inquiries concerning the scheduling of maintenance activities. Adopting an annual inventory policy will help insure that no facilities or potential problems are overlooked.

```
*************************************************************
*************************************************************
*******                                            **********
*******        WATERWAYS MANAGEMENT MODEL          **********
*******        --------------------------          **********
*******                                            **********
*******    SANTA CLARA VALLEY WATER DISTRICT       **********
*******            SAN JOSE, CALIFORNIA            **********
*******                                            **********
*******    PREDESIGN DIVISION - FLOOD CONTROL      **********
*******                   1984                     **********
*******                                            **********
*************************************************************
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*************************************************************
*                                                           *
*  JOB OPTION 4-  CHANNEL MAINTENANCE RANKING               *
*                 -------------------------------           *
*                                                           *
*  RUN DATE: 12/ 4/84                                       *
*                                                           *
*  ZONE :               EAST                                *
*                                                           *
*  DATA :  IP04K9 - EAST ZONE CREEKS - 11/27/84             *
*                                                           *
*************************************************************
```

```
               <<<<<<<<<<<<<<<     GROUP-BY-GROUP SUMMARY OF ORDERED REACHES     >>>>>>>>>>>>>>>

*************** GROUP 1 ***************    *************** GROUP 2 **************    ************** GROUP 3 **************

RANK    CREEK                DOWN-    UP-      RANK    CREEK                DOWN-    UP-      RANK    CREEK                DOWN-    UP-
                             STREAM   STREAM                                STREAM   STREAM                                STREAM   STREAM
                             STATION  STATION                               STATION  STATION                               STATION  STATION
---  ----------------        -------  -------  ---  ----------------        -------  -------  ---  ----------------        -------  -------

  1  COYOTE                   780.00   810.00    1  BERRYESSA                176.00   179.00    1  COYOTE                   850.00   850.00
  2  FISHER                    80.00   100.00    2  BERRYESSA                179.00   201.00    2  UPPER PENITENCIA         149.39   172.00
  3  SOUTH BABB                 0.00     2.05    3  UPPER PENITENCIA          35.50    56.65    3  COYOTE                   850.00   904.50
  4  LOWER SILVER             245.80   290.00    4  BERRYESSA                167.00   176.00    4  UPPER PENITENCIA          23.60    35.25
  5  FISHER                     1.00    40.00    5  COYOTE                   735.00   780.00
  6  FISHER                    54.50    80.00    6  UPPER PENITENCIA         146.70   149.39
  7  LOWER SILVER             131.00   155.00    7  LOWER SILVER              80.00   102.00
  8  FISHER                    40.00    51.00    8  COYOTE                   595.00   735.00
  9  UPPER SILVER              11.00    12.50    9  BERRYESSA                 90.00   166.50
 10  LOWER SILVER             102.00   103.50   10  LOWER SILVER              53.40    80.00
 11  LOWER SILVER              10.00    53.40   11  LOWER SILVER             183.00   245.00
 12  LOWER SILVER             103.50   123.80   12  COYOTE                     0.00   595.00
 13  BERRYESSA                223.00   237.50   13  SOUTH BABB                15.00    47.00
 14  LOWER PENITENCIA         136.10   174.00   14  UPPER PENITENCIA          35.25    35.50
 15  UPPER PENITENCIA          89.35    90.07   15  LOWER SILVER             157.20   180.55
 16  LOWER SILVER             245.00   245.80   16  CALERA                    63.00    66.50
 17  LOS COCHES                15.75    24.00   17  FISHER                   100.00   143.32
 18  LOWER SILVER             123.80   131.00   18  FISHER                   143.32   175.70
 19  BERRYESSA                286.00   290.34   19  LOWER SILVER             292.50   316.70
 20  SOUTH BABB                 2.05     3.00   20  CALERA                    66.50   165.50
 21  SIERRA                    49.00    73.00   21  UPPER PENITENCIA         117.50   146.70
 22  NORWOOD                    0.50    32.00
 23  SOUTH BABB                 3.00    15.00
 24  BERRYESSA                239.00   286.00
 25  SOUTH BABB                47.00    50.00
 26  FISHER                    51.00    54.50
 27  FLINT                      0.00    14.10
 28  NORTH BABB                 0.00     3.55
 29  RUBY                       0.00    10.00
 30  UPPER SILVER              37.00    40.00
 31  CALERA                    30.75    52.75
 32  LOS COCHES                24.00    63.10
 33  PIEDMONT                  19.00    43.50
```

```
<<<<<<<<<<<<<<<<    GROUP-BY-GROUP SUMMARY OF ORDERED REACHES    >>>>>>>>>>>>>>>>

************** GROUP 4 **************    ************** GROUP 5 **************    ************* GROUP 6 *************

RANK   CREEK               DOWN-   UP-       RANK   CREEK               DOWN-   UP-       RANK   CREEK               DOWN-   UP-
                           STREAM  STREAM                               STREAM  STREAM                               STREAM  STREAM
                           STATION STATION                              STATION STATION                              STATION STATION
---  ----------------      ------- -------   ---  ----------------      ------- -------   ---  ----------------      ------- -------

  1  COYOTE                810.00  830.00      1  UPPER PENITENCIA       71.28   89.35      1  UPPER PENITENCIA        0.00   23.00
  2  UPPER PENITENCIA      197.00  217.50      2  QUIMBY                 13.25   39.00      2  CALERA                 52.75   63.00
  3  BERRYESSA             290.34  510.00      3  LOWER PENITENCIA      174.00  176.00      3  UPPER PENITENCIA       23.00   23.60
  4  UPPER PENITENCIA      172.00  197.00      4  BERRYESSA             237.50  239.00
                                               5  LOS COCHES              0.00   13.50
                                               6  LOWER PENITENCIA      176.00  184.50
                                               7  EAST PENITENCIA         0.00   15.00
                                               8  LOWER PENITENCIA      187.50  218.00
                                               9  LOWER PENITENCIA      184.50  187.50
                                              10  UPPER SILVER           40.00   66.36
                                              11  LOS COCHES             13.50   15.75
                                              12  UPPER SILVER           12.50   37.00
                                              13  TULARCITOS             33.50   36.16
                                              14  UPPER SILVER            0.00   11.00
                                              15  SIERRA                 29.60   49.00
                                              16  SIERRA                  0.00   29.60
                                              17  LOWER SILVER          155.00  157.20
                                              18  LOWER PENITENCIA      113.20  136.10
                                              19  RUBY                   10.60   12.00
                                              20  NORTH BABB              3.55    7.00
                                              21  EAST PENITENCIA        25.00   30.00
                                              22  LOWER PENITENCIA       69.00  111.74
                                              23  NORWOOD                 0.00    0.50
                                              24  FLINT                  14.10   17.50
                                              25  CALERA                  0.00    1.50
                                              26  UPPER PENITENCIA       57.00   64.00
                                              27  THOMPSON                0.00    9.50
                                              28  RUBY                   10.00   10.60
                                              29  BERRYESSA              22.00   29.00
                                              30  NORTH BABB             42.00   52.00
                                              31  UPPER PENITENCIA       64.55   71.00
                                              32  PIEDMONT                0.00   16.00
                                              33  BERRYESSA               0.00   22.00
                                              34  UPPER PENITENCIA       71.00   71.28
                                              35  LOWER PENITENCIA        0.00    4.50
                                              36  THOMPSON               11.00   56.50
                                              37  NORTH BABB              7.00   15.00
                                              38  EAST PENITENCIA        16.15   25.00
                                              39  UPPER PENITENCIA       56.65   57.00
                                              40  TULARCITOS             24.00   33.50
                                              41  CALERA                  8.50   30.75
                                              42  EAST PENITENCIA        15.00   16.15
                                              43  BERRYESSA              29.00   87.00
```

```
                 <<<<<<<<<<<<<<<<    GROUP-BY-GROUP SUMMARY OF ORDERED REACHES    >>>>>>>>>>>>>>>>


 **************  GROUP 4  **************    **************  GROUP 5  *************    *************  GROUP 6  *************

 RANK     CREEK            DOWN-    UP-      RANK      CREEK           DOWN-    UP-      RANK       CREEK          DOWN-    UP-
                           STREAM   STREAM                             STREAM   STREAM                            STREAM   STREAM
                           STATION  STATION                            STATION  STATION                           STATION  STATION
 ---  ----------------     -------  -------  ---  ----------------     -------  -------  ---  ----------------    -------  -------


                                              44  QUIMBY                 11.50    13.25
                                              45  CALERA                  1.50     8.50
                                              46  LOWER SILVER            0.00    10.00
                                              47  PIEDMONT               16.00    19.00
                                              48  TULARCITOS              0.00    24.00
                                              49  NORTH BABB             15.00    16.00
                                              50  BERRYESSA             166.50   167.00
                                              51  UPPER PENITENCIA       64.00    64.55
                                              52  LOWER SILVER          366.50   377.50
                                              53  BERRYESSA             201.00   223.00
                                              54  LOWER PENITENCIA      111.74   113.20
                                              55  FISHER                  0.00     1.00
                                              56  QUIMBY                  0.00    11.50
                                              57  THOMPSON                9.50    11.00
                                              58  BERRYESSA              87.00    90.00
                                              59  LOWER SILVER          180.55   183.00
                                              60  LOWER PENITENCIA       38.40    43.00
                                              61  LOWER PENITENCIA        4.50    20.00
                                              62  LOWER PENITENCIA       47.30    69.00
                                              63  LOWER PENITENCIA       20.00    38.40
                                              64  LOWER SILVER          290.00   292.50
                                              65  LOWER PENITENCIA       43.00    47.30
                                              66  UPPER PENITENCIA       90.07   117.50
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****************************************************************   GROUP 1   ****************************************************************

     THESE IMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD  BUT THERE ARE NO DAMAGES ATTRIBUTED TO THEM.
     RANKING IS BY DECREASING MAXIMUM DIFFERENCE IN FREEBOARD BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-
     MAINTAINED CONDITIONS.


                                                     MAINTENANCE                                          MAXIMUM
                                                      STANDARD          EXISTING CONDITION                DIFF.
RANK  CREEK                              STATION  ****************  ******************************      IN      CHANNEL TYPE W/ MAXIMUM
       LOCATION                          LIMITS         FLOOD FREE-                 FLOOD SED   FREE-    FREE-    DIFFERENCE IN FREEBOARD
                                                  NMIN  FREQ  BOARD  DATE     N     FREQ  DEPTH BOARD    BOARD      REACH DESCRIPTIONS
                                                        (YR)  (FT)              (YR)  (FT)  (FT)

 1.1  COYOTE
       FROM U/S CHARCOT AVE              780.00   .030  103   1.7  AUG 84 .050      9   1.5  -5.4     7.2    EXCAVATED  EARTH
       THRU  D/S SPRR                    810.00                                                                IMPROVED REACH
                                                                                                               CHAN. CONSTANT
                                                                                                               NO CULVERTS

 1.2  FISHER
       FROM  D/S BAILEY AVE               80.00   .030    1 -10.4  JUL 84 .057      1   0.0 -16.0     5.5    EXCAVATED  EARTH
       THRU  D/S BAILEY AVE              100.00                                                                IMPROVED REACH
                                                                                                               CHAN. CONSTANT
                                                                                                               NO CULVERTS

 1.3  SOUTH BABB
       FROM  U/S CONFL WITH L SILVER       0.00   .013    2  -1.4  JUL 84 .015      1   2.0  -6.8     5.4    BOX CULVERT
       THRU  U/S FARRINGTON DR RCB         2.05                                                                IMPROVED REACH
                                                                                                               CHAN. CONSTANT
                                                                                                               BOX CULVERT(S)

 1.4  LOWER SILVER
       FROM  U/S CUNNINGHAM AVE RCB      245.80   .030    2  -3.4  JUL 84 .059      1   1.0  -8.1     4.7    EXCAVATED  EARTH
       THRU  D/S TULLY RD. RCB           290.00                                                                IMPROVED REACH
                                                                                                               CHAN. CONSTANT
                                                                                                               NO CULVERTS

 1.5  FISHER
       FROM  D/S MONTEREY HWY RCB          1.00   .030  100   0.0  JUL 84 .070      3   0.5  -4.6     4.6    EARTHLEVEES
       THRU  U/S SPRR RCB                 40.00                                                                IMPROVED REACH
                                                                                                               CHAN. NOT CONST.
                                                                                                               BOX CULVERT(S)

 1.6  FISHER
       FROM  U/S SANTA THERESA RCB        54.50   .030  100  -0.0  JUL 84 .050      6   0.0  -3.0     2.9    EARTHLEVEES
       THRU  D/S BAILEY AVE               80.00                                                                IMPROVED REACH
                                                                                                               CHAN. CONSTANT
                                                                                                               NO CULVERTS

 1.7  LOWER SILVER
       FROM  U/S JACKSON ST. RCB         131.00   .030  100  -0.0  JUL 84 .046      1   0.4  -2.9     2.9    EXCAVATED  EARTH
       THRU  D/S CAPITOL EXPWY. RBC      155.00                                                                IMPROVED REACH
                                                                                                               CHAN. CONSTANT
                                                                                                               NO CULVERTS
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** GROUP 1 **

THESE IMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD BUT THERE ARE NO DAMAGES ATTRIBUTED TO THEM. RANKING IS BY DECREASING MAXIMUM DIFFERENCE IN FREEBOARD BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-MAINTAINED CONDITIONS.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD			EXISTING CONDITION					MAXIMUM DIFF. IN FREEBOARD	CHANNEL TYPE W/ MAXIMUM DIFFERENCE IN FREEBOARD REACH DESCRIPTIONS
			NMIN	FLOOD FREQ (YR)	FREEBOARD (FT)	DATE	N	FLOOD FREQ (YR)	SED DEPTH (FT)	FREEBOARD (FT)		
1.8	FISHER FROM U/S SPRR RCB THRU D/S SANTA THERESA RCB	40.00 51.00	.030	100	-0.0	JUL 84	.048	6	0.5	-2.7	2.7	EARTHLEVEES IMPROVED REACH CHAN. CONSTANT NO CULVERTS
1.9	UPPER SILVER FROM D/S MCGLAUGHLIN DR. RBC THRU U/S MCGLAUGHLIN DR. RBC	11.00 12.50	.013	109	0.1	JUL 84	.013	36	1.5	-1.6	1.8	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
1.10	LOWER SILVER FROM D/S SAN ANTONIO ST THRU D/S SAN ANTONIO ST RCB	102.00 103.50	.035	2	-2.5	JUL 84	.044	1	0.2	-4.1	1.6	ROCK LINED - SIDES ONLY IMPROVED REACH CHAN. CONSTANT NO CULVERTS
1.11	LOWER SILVER FROM D/S WOOSTER ST THRU U/S MCKEE RD. RBC	10.00 53.40	.030	100	0.2	JUL 84	.036	3	0.0	-1.4	1.6	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
1.12	LOWER SILVER FROM D/S SAN ANTONIO ST RCB THRU D/S FREEWAY 680	103.50 123.80	.030	2	-2.4	JUL 84	.036	1	0.1	-3.7	1.3	EXCAVATED EARTH IMPROVED REACH CHAN. NOT CONST. BOX CULVERT(S)
1.13	BERRYESSA FROM U/S CROPLEY AVE RCB THRU U/S SIERRA CONFL.	223.00 237.50	.030	65	-0.4	JUN 84	.038	29	0.0	-1.7	1.3	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
1.14	LOWER PENITENCIA FROM U/S SYLVIA AVE RBC THRU D/S CAPITOL AVE RBC	136.10 174.00	.030	145	0.3	JUN 84	.039	26	0.0	-1.0	1.3	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S) EXQ1>DSGN Q1-U/S SPILL?

GROUP 1

THESE IMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD BUT THERE ARE NO DAMAGES ATTRIBUTED TO THEM. RANKING IS BY DECREASING MAXIMUM DIFFERENCE IN FREEBOARD BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-MAINTAINED CONDITIONS.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD NMIN	MAINTENANCE STANDARD FLOOD FREQ (YR)	MAINTENANCE STANDARD FREE-BOARD (FT)	EXISTING CONDITION DATE	EXISTING CONDITION N	EXISTING CONDITION FLOOD FREQ (YR)	EXISTING CONDITION SED DEPTH (FT)	EXISTING CONDITION FREE-BOARD (FT)	MAXIMUM DIFF. IN FREE-BOARD	CHANNEL TYPE W/ MAXIMUM DIFFERENCE IN FREEBOARD REACH DESCRIPTIONS
1.15	UPPER PENITENCIA FROM D/S JACKSON ARCH THRU U/S JACKSON ARCH	89.35 90.07	.020	6	-0.2	JUL 84	.020	4	1.0	-1.5	1.2	SEMI - CIRC. CULVERT IMPROVED REACH CHAN. CONSTANT ARCH CULVERT(S)
1.16	LOWER SILVER FROM D/S CUNNINGHAM AVE RCB THRU U/S CUNNINGHAM AVE RCB	245.00 245.80	.013	2	-6.2	JUL 84	.013	2	0.5	-7.3	1.1	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
1.17	LOS COCHES FROM U/S FWY 680 RCB THRU ELEVATION DAM	15.75 24.00	.030	7	-6.0	JUN 84	.031	6	0.5	-7.1	1.1	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
1.18	LOWER SILVER FROM D/S FREEWAY 680 THRU U/S JACKSON ST. RCB	123.80 131.00	.013	100	1.0	JUL 84	.015	3	0.2	-0.1	1.1	TRAPEZOIDAL CONCRETE IMPROVED REACH CHAN. NOT CONST. BOX CULVERT(S)
1.19	BERRYESSA FROM D/S PIEDMONT AVE RCB THRU U/S PIEDMONT ROAD RCB	286.00 290.34	.013	21	-4.1	JUN 84	.013	16	0.6	-5.1	1.0	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
1.20	SOUTH BABB FROM U/S FARRINGTON DR RCB THRU U/S FARRINGTON DR RCB	2.05 3.00	.013	2	-0.8	JUL 84	.015	2	1.5	-1.7	0.9	TRAPEZOIDAL CONCRETE IMPROVED REACH CHAN. CONSTANT NO CULVERTS
1.21	SIERRA FROM NR.RUSKIN ELEM.SCH. THRU D/S MAUNA KEA(54" RCP)	49.00 73.00	.030	142	0.5	JUN 84	.034	44	1.5	-0.4	0.9	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT PIPE(S) PRESENT

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****************************************************************   GROUP 1    ****************************************************************

        THESE IMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD  BUT THERE ARE NO DAMAGES ATTRIBUTED TO THEM.
        RANKING IS BY DECREASING MAXIMUM DIFFERENCE IN FREEBOARD BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-
        MAINTAINED CONDITIONS.

                                                            MAINTENANCE                                          MAXIMUM
                                                             STANDARD               EXISTING CONDITION           DIFF.
 RANK  CREEK                                       STATION  *****************  ********************************  IN      CHANNEL TYPE W/ MAXIMUM
        LOCATION                                   LIMITS         FLOOD FREE-                  FLOOD SED   FREE-  FREE-   DIFFERENCE IN FREEBOARD
                                                           NMIN  FREQ  BOARD  DATE      N    FREQ  DEPTH  BOARD  BOARD     REACH DESCRIPTIONS
                                                                 (YR)  (FT)                  (YR)  (FT)   (FT)

 1,22  NORWOOD
         FROM  U/S THOMPSON CRK CONFL       0.50   .030   262   0,9   JUL 84 ,035   113   0,5    0,1     0,8   EXCAVATED  EARTH
         THRU  D/S WHITE RD .RBC           32.00                                                                  IMPROVED REACH
                                                                                                                  CHAN, CONSTANT
                                                                                                                  NO CULVERTS

 1,23  SOUTH BABB
         FROM  U/S FARRINGTON DR RCB        3.00   .013     2  -0,8   JUL 84 ,015     2   0,8   -1,6     0,8   TRAPEZOIDAL CONCRETE
         THRU  D/S WHITE RD RCB            15.00                                                                  IMPROVED REACH
                                                                                                                  CHAN, CONSTANT
                                                                                                                  NO CULVERTS

 1,24  BERRYESSA
         FROM  U/S SIERRA-END UFRAME      239.00   .035    56  -0,6   JUN 84 ,042    29   0,6   -1,4     0,6   MODIFIED FLOOD PLAIN
         THRU  D/S PIEDMONT AVE RCB       286.00                                                                  IMPROVED REACH
                                                                                                                  CHAN, CONSTANT
                                                                                                                  NO CULVERTS

 1,25  SOUTH BABB
         FROM  D/S CLAYTON RD RCB          47.00   .030   100   0,1   JUL 84 ,035    43   0,2   -0,4     0,5   EXCAVATED  EARTH
         THRU  D/S CLAYTON RD RCB          50.00                                                                  IMPROVED REACH
                                                                                                                  CHAN, CONSTANT
                                                                                                                  NO CULVERTS

 1,26  FISHER
         FROM  D/S SANTA THERESA RCB       51.00   .013     9  -5,0   JUL 84 ,015     8   0,3   -5,4     0,4   BOX CULVERT
         THRU  U/S SANTA THERESA RCB       54.50                                                                  IMPROVED REACH
                                                                                                                  CHAN, CONSTANT
                                                                                                                  BOX CULVERT(S)

 1,27  FLINT
         FROM  CONFL WITH L SILVER          0.00   .035   100   0,1   JUL 84 ,048    34   0,4   -0,4     0,4   BOX CULVERT
         THRU U/S RCB /BEG GABIONS         14.10                                                                  IMPROVED REACH
                                                                                                                  CHAN, NOT CONST,
                                                                                                                  BOX CULVERT(S)

 1,28  NORTH BABB
         FROM  U/S CONFL WITH L SILVER      0.00   .035    20  -0,3   JUL 84 ,036     9   0,2   -0,5     0,2   BOX CULVERT
         THRU  U/S LYNDALE AVE RCB          3.55                                                                  IMPROVED REACH
                                                                                                                  CHAN, CONSTANT
                                                                                                                  BOX CULVERT(S)
                                                                                                                  EXQ1>DSGN Q1-U/S SPILL?
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*********************************************************  GROUP 1  *********************************************************

        THESE IMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD  BUT THERE ARE NO DAMAGES ATTRIBUTED TO THEM.
        RANKING IS BY DECREASING MAXIMUM DIFFERENCE IN FREEBOARD BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-
        MAINTAINED CONDITIONS.

                                                      MAINTENANCE                                         MAXIMUM
                                                       STANDARD          EXISTING CONDITION               DIFF.
RANK  CREEK                                 STATION  *****************  ******************************   IN      CHANNEL TYPE W/ MAXIMUM
      LOCATION                              LIMITS         FLOOD FREE-                  FLOOD SED   FREE-  FREE-   DIFFERENCE IN FREEBOARD
                                                     NMIN  FREQ  BOARD  DATE     N      FREQ DEPTH  BOARD  BOARD     REACH DESCRIPTIONS
                                                           (YR)  (FT)                   (YR) (FT)   (FT)

 1.29  RUBY
        FROM  U/S CONFL WITH FLINT CR        0.00   .030  183    0.1   JUL 84 .032    90   0.0    0.1    0.0   EXCAVATED  EARTH
        THRU  D/S L.CUNNGHAM ENTR.RBC       10.00                                                                IMPROVED REACH
                                                                                                                 CHAN. CONSTANT
                                                                                                                 NO CULVERTS

 1.30  UPPER SILVER
        FROM  D/S 680 CHP/RBC               37.00   .013   66    0.0   JUL 84 .013    66   0.0    0.0    0.0   PIPE
        THRU FREEWAY                        40.00                                                                IMPROVED REACH
                                                                                                                 CHAN. CONSTANT
                                                                                                                 PIPE(S) PRESENT

 1.31  CALERA
        FROM  U/S TYPE III DROP             30.75   .035    8   -0.8   JUN 84 .039     8   0.0   -0.8    0.0   BOX CULVERT
        THRU  U/S EARTHEN DROP              52.75                                                                IMPROVED REACH
                                                                                                                 CHAN. CONSTANT
                                                                                                                 BOX CULVERT(S)

 1.32  LOS COCHES
        FROM ELEVATION DAM                  24.00   .013    6  -11.2   JUN 84 .013     6   0.0  -11.2    0.0   BOX CULVERT
        THRU  D/S EVANS  DR                 63.10                                                                IMPROVED REACH
                                                                                                                 CHAN. NOT CONST.
                                                                                                                 BOX CULVERT(S)

 1.33  PIEDMONT
        FROM  U/S ROSWELL(BEG 84"RCP)       19.00   .013   53   -0.4   JUN 84 .013    42   0.2   -0.6   -1.0   BOX CULVERT
        THRU  U/S ROSWELL(BEG 84"RCP)       43.50                                                                IMPROVED REACH
                                                                                                                 CHAN. CONSTANT
                                                                                                                 BOX CULVERT(S)
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*********************************************************   GROUP 2   *********************************************************

        THESE IMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD AND HAVE DAMAGES ATTRIBUTED TO THEM. RANKING IS BY
        DECREASING AVERAGE ANNUAL DAMAGE REDUCTION BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-MAINTAINED CONDITIONS.

                                                  MAINTENANCE
                                                    STANDARD              EXISTING CONDITION              AVG ANN
 RANK  CREEK                             STATION  *****************   *******************************   DAMAGE      CHANNEL TYPE WITH
        LOCATION                          LIMITS        FLOOD FREE-                     FLOOD SED     FREE- REDUCT      MIN FREEBOARD
                                                   NMIN  FREQ  BOARD    DATE      N    FREQ  DEPTH  BOARD ($1000/MI)    REACH DESCRIPTIONS
                                                         (YR)  (FT)                    (YR)  (FT)   (FT)

  2.1  BERRYESSA
        FROM  BEGIN CONCRETE BEND         176.00  .013   11   -2.3    JUN 84 .025    2    0.0    -5.9    660.3     TRAPEZOIDAL CONCRETE
        THRU  END CONCRETE BEND           179.00                                                                      IMPROVED REACH
                                                                                                                      CHAN. CONSTANT
                                                                                                                      NO CULVERTS

  2.2  BERRYESSA
        FROM  END CONCRETE BEND           179.00  .030   21   -1.6    JUN 84 .037   11    0.0    -2.7    414.9     EXCAVATED  EARTH
        THRU  D/S FWY 680                 201.00                                                                      IMPROVED REACH
                                                                                                                      CHAN. CONSTANT
                                                                                                                      NO CULVERTS

  2.3  UPPER PENITENCIA
        FROM  U/S KING ROAD                35.50  .030    5   -0.6    JUL 84 .035    4    0.0    -1.4    313.6     EARTHLEVEES
        THRU  D/S LOWER MABURY             56.65                                                                      IMPROVED REACH
                                                                                                                      CHAN. CONSTANT
                                                                                                                      NO CULVERTS

  2.4  BERRYESSA
        FROM  U/S MONTAGUE EXPWY RCB      167.00  .030    7   -3.1    JUN 84 .035    5    0.0    -3.9    251.7     EXCAVATED  EARTH
        THRU  BEGIN CONCRETE BEND         176.00                                                                      IMPROVED REACH
                                                                                                                      CHAN. CONSTANT
                                                                                                                      NO CULVERTS

  2.5  COYOTE
        FROM  N. MONTAGUE EXPY            735.00  .030   17   -3.1    AUG 84 .046    4    2.0   -11.1    194.0     EXCAVATED  EARTH
        THRU U/S CHARCOT AVE              780.00                                                                      IMPROVED REACH
                                                                                                                      CHAN. CONSTANT
                                                                                                                      NO CULVERTS

  2.6  UPPER PENITENCIA
        FROM  D/S PENITENCIA CREEK RD     146.70  .020   20   -3.3    JUL 84 .020   12    2.0    -6.9    181.6     BOX CULVERT
        THRU  U/S PENITENCIA CREEK RD     149.39                                                                      IMPROVED REACH
                                                                                                                      CHAN. CONSTANT
                                                                                                                      BOX CULVERT(S)

  2.7  LOWER SILVER
        FROM TROPICAIRE DRIVEIN            80.00  .013  100    0.4    JUL 84 .016    3    0.4    -1.2    176.1     TRAPEZOIDAL CONCRETE
        THRU  D/S SAN ANTONIO ST          102.00                                                                      IMPROVED REACH
                                                                                                                      CHAN. CONSTANT
                                                                                                                      BOX CULVERT(S)
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** GROUP 2 **

THESE IMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD AND HAVE DAMAGES ATTRIBUTED TO THEM. RANKING IS BY DECREASING AVERAGE ANNUAL DAMAGE REDUCTION BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON=MAINTAINED CONDITIONS.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD NMIN	 FLOOD FREQ (YR)	 FREE=BOARD (FT)	EXISTING CONDITION DATE	 N	 FLOOD FREQ (YR)	 SED DEPTH (FT)	 FREE=BOARD (FT)	AVG ANN DAMAGE REDUCT ($1000/MI)	CHANNEL TYPE WITH MIN FREEBOARD REACH DESCRIPTIONS
2.8	COYOTE FROM D/S HWY 237 THRU MONTAGUE	595.00 735.00	.030	4	=4.0	AUG 84	.070	1	2.0	=17.4	81.2	EARTHLEVEES IMPROVED REACH CHAN. CONSTANT NO CULVERTS
2.9	BERRYESSA FROM U/S CALAVERAS BLVD RCB THRU D/S MONTAGUE EXPWY RCB	90.00 166.50	.030	2	=5.4	JUN 84	.040	2	0.0	=7.2	47.4	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT NO CULVERTS
2.10	LOWER SILVER FROM U/S MCKEE RD. RBC THRU TROPICAIRE DRIVEIN	53.40 80.00	.030	3	=0.5	JUL 84	.036	2	0.0	=1.8	16.6	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT NO CULVERTS
2.11	LOWER SILVER FROM U/S STORY RD. RBC THRU D/S CUNNINGHAM AVE RCB	183.00 245.00	.030	2	=4.5	JUL 84	.036	1	0.2	=6.0	13.0	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
2.12	COYOTE FROM BAY THRU D/S HWY 237	0.00 595.00	.030	1	=4.1	AUG 84	.065	1	0.5	=13.2	11.5	EARTHLEVEES PART. IMPROVED CHAN. NOT CONST. NO CULVERTS
2.13	SOUTH BABB FROM D/S WHITE RD RCB THRU D/S CLAYTON RD RCB	15.00 47.00	.013	4	=3.2	JUL 84	.015	4	0.0	=3.2	5.7	BOX CULVERT IMPROVED REACH CHAN. NOT CONST. BOX CULVERT(S)
2.14	UPPER PENITENCIA FROM D/S KING ROAD THRU U/S KING ROAD	35.25 35.50	.020	3	=1.7	JUL 84	.020	3	0.5	=2.4	4.4	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)

** GROUP 2 **

THESE IMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD AND HAVE DAMAGES ATTRIBUTED TO THEM. RANKING IS BY DECREASING AVERAGE ANNUAL DAMAGE REDUCTION BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-MAINTAINED CONDITIONS.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD			EXISTING CONDITION					AVG ANN DAMAGE REDUCT ($1000/MI)	CHANNEL TYPE WITH MIN FREEBOARD REACH DESCRIPTIONS
			NMIN	FLOOD FREQ (YR)	FREEBOARD (FT)	DATE	N	FLOOD FREQ (YR)	SED DEPTH (FT)	FREEBOARD (FT)		
2.15	LOWER SILVER FROM U/S CAPITOL EXPWY. RBC THRU D/S STORY RD. RBC	157.20 180.55	.030	2	-1.0	JUL 84	.032	2	0.0	-1.3	2.5	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT NO CULVERTS
2.16	CALERA FROM D/S FWY 680 THRU U/S FWY 680 RCB	63.00 66.50	.013	67	-0.7	JUN 84	.013	61	0.2	-0.9	1.6	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S) EXQ1>DSGN Q1-U/S SPILL?
2.17	FISHER FROM D/S BAILEY AVE THRU D/S FISHER RD RCB	100.00 143.32	.030	1	-10.4	JUL 84	.046	1	0.0	-14.0	1.4	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
2.18	FISHER FROM D/S FISHER RD RCB THRU D/S RICHMOND AVE RCB	143.32 175.70	.030	1	-9.2	JUL 84	.047	1	0.0	-9.2	1.0	BOX CULVERT IMPROVED REACH CHAN. NOT CONST. BOX CULVERT(S)
2.19	LOWER SILVER FROM U/S TULLY RD. RCB THRU THOMPSON CRK. CONFL.	292.50 316.70	.030	4	-0.6	JUL 84	.063	1	1.5	-5.4	0.3	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT NO CULVERTS
2.20	CALERA FROM U/S FWY 680 RCB THRU IMIT OF JURISDICTI	66.50 165.50	.035	163	0.3	JUN 84	.045	18	0.0	-2.0	0.3	SACKED CONCRETE RIPRAP PART. IMPROVED CHAN. NOT CONST. BOX CULVERT(S)
2.21	UPPER PENITENCIA FROM D/S CAPITOL AVE THRU D/S PENITENCIA CREEK RD	117.50 146.70	.035	6	-10.0	JUL 84	.035	6	0.0	-10.0	0.0	BOX CULVERT PART. IMPROVED CHAN. NOT CONST. BOX CULVERT(S)

** GROUP 3 **

THESE UNIMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD AND HAVE DAMAGES ATTRIBUTED TO THEM. RANKING IS BY DECREASING AVERAGE ANNUAL DAMAGE REDUCTION BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-MAINTAINED CONDITIONS.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD			EXISTING CONDITION					AVG ANN DAMAGE REDUCT ($1000/MI)	CHANNEL TYPE WITH MIN FREEBOARD REACH DESCPIPTIONS
			NMIN	FLOOD FREQ (YR)	FREE-BOARD (FT)	DATE	N	FLOOD FREQ (YR)	SED DEPTH (FT)	FREE-BOARD (FT)		
3.1	COYOTE FROM OLD OAKLAND RD THRU OLD OAKLAND RD	830.00 850.00	.035	34	-0.5	AUG 84	.055	6	0.5	-6.7	99.0	NATURAL - UNMODIFIED UNIMPROVED REACH CHAN. CONSTANT NO CULVERTS
3.2	UPPER PENITENCIA FROM U/S PENITENCIA CREEK RD THRU U/S PIEDMONT RD	149.39 172.00	.035	29	-1.0	JUL 84	.040	21	0.0	-1.8	69.8	NATURAL - UNMODIFIED UNIMPROVED REACH CHAN. CONSTANT NO CULVERTS
3.3	COYOTE FROM OLD OAKLAND RD THRU D/S UPPER PENITENCIA	850.00 904.50	.035	6	-6.8	AUG 84	.061	2	0.5	-16.7	27.9	NATURAL - UNMODIFIED UNIMPROVED REACH CHAN. CONSTANT NO CULVERTS
3.4	UPPER PENITENCIA FROM U/S BRYSSA IND PK CUL THRU D/S KING ROAD	23.60 35.25	.035	4	-0.7	JUL 84	.040	3	0.0	-1.7	14.7	NATURAL - UNMODIFIED UNIMPROVED REACH CHAN. CONSTANT NO CULVERTS

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************************************************************  GROUP 4   ************************************************************

     THESE UNIMPROVED REACHES ARE INADEQUATE FOR THE ONE PERCENT FLOOD BUT HAVE NO DAMAGES ATTRIBUTED TO THEM. RANKING IS BY
     DECREASING MAXIMUM DIFFERENCE IN FREEBOARD BETWEEN MAINTENANCE STANDARD CONDITIONS AND NON-MAINTAINED CONDITIONS.

                                               MAINTENANCE                                          MAXIMUM
                                                 STANDARD             EXISTING CONDITION            DIFF.
RANK  CREEK                           STATION  *****************  ********************************  IN      CHANNEL TYPE W/ MAXIMUM
       LOCATION                       LIMITS          FLOOD FREE-                    FLOOD SED    FREE- FREE-   DIFFERENCE IN FREEBOARD
                                               NMIN   FREQ  BOARD   DATE      N    FREQ  DEPTH  BOARD BOARD     REACH DESCRIPTIONS
                                                      (YR)  (FT)                   (YR)  (FT)   (FT)

 4.1  COYOTE
       FROM  D/S SPRR                 810.00   .035   100   0.0   AUG 84 .071     4   0.7  -10.2   10.2    NATURAL - UNMODIFIED
       THRU OLD OAKLAND RD            830.00                                                                  UNIMPROVED REACH
                                                                                                              CHAN. CONSTANT
                                                                                                              NO CULVERTS

 4.2  UPPER PENITENCIA
       FROM NR LINDA VISTA ST         197.00   .035    11  -3.3   JUL 84 .040     9   0.0   -3.9    0.6    NATURAL - UNMODIFIED
       THRU  U/S DOREL AVE            217.50                                                                  UNIMPROVED REACH
                                                                                                              CHAN. CONSTANT
                                                                                                              NO CULVERTS

 4.3  BERRYESSA
       FROM  U/S PIEDMONT ROAD RCB    290.34   .035   100   0.0   JUN 84 .038    62   0.5   -0.5    0.5    NATURAL - UNMODIFIED
       THRU LIMIT OF JURISDICT        510.00                                                                  UNIMPROVED REACH
                                                                                                              CHAN. CONSTANT
                                                                                                              NO CULVERTS

 4.4  UPPER PENITENCIA
       FROM U/S PIEDMONT RD           172.00   .035    11  -4.6   JUL 84 .035    11   0.0   -4.6    0.0    NATURAL - UNMODIFIED
       THRU NR LINDA VISTA ST         197.00                                                                  UNIMPROVED REACH
                                                                                                              CHAN. CONSTANT
                                                                                                              NO CULVERTS
 ***********************************************************     GROUP 5     ***********************************************************

     THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD.  RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

                                                       MAINTENANCE
                                                         STANDARD                 EXISTING CONDITION                STATION
  RANK  CREEK                                STATION  *****************   *******************************   W/MIN     CHANNEL TYPE WITH
          LOCATION                           LIMITS            FLOOD FREE-                   FLOOD SED    FREE-   FREE-     MINIMUM FREEBOARD
                                                      NMIN  FREQ  BOARD   DATE      N     FREQ  DEPTH  BOARD   BOARD      REACH DESCRIPTIONS
                                                            (YR)   (FT)                    (YR)   (FT)   (FT)    (FT)

   5.1  UPPER PENITENCIA
          FROM  U/S UPPER MABURY              71.28  .030   100   0.5    JUL 84 .035   100    0.0   -0.1    87.70   EARTHLEVEES
          THRU  D/S JACKSON ARCH              89.35                                                                  IMPROVED REACH
                                                                                                                     CHAN. CONSTANT
                                                                                                                     NO CULVERTS

   5.2  QUIMBY
          FROM  U/S WHITE RD. RBC             13.25  .030   100   0.0    JUL 84 .032   100    0.0    0.0    38.20   PIPE
          THRU  D/S MT. ISABEL DR.            39.00                                                                  IMPROVED REACH
                                                                                                                     CHAN. CONSTANT
                                                                                                                     PIPE(S) PRESENT

   5.3  LOWER PENITENCIA
          FROM  D/S CAPITOL AVE RBC          174.00  .013    99   0.0    JUN 84 .013    99    0.0    0.0   174.00   BOX CULVERT
          THRU  U/S CAPITOL AVE RCB          176.00                                                                  IMPROVED REACH
                                                                                                                     CHAN. CONSTANT
                                                                                                                     BOX CULVERT(S)
                                                                                                                     EXQ1>DSGN Q1-U/S SPILL?
   5.4  BERRYESSA
          FROM  U/S SIERRA CONFL.            237.50  .013   999   5.1    JUN 84 .025   110    0.6    0.2   237.50   U-FRAME CONCRETE
          THRU  U/S SIERRA-END UFRAME        239.00                                                                  IMPROVED REACH
                                                                                                                     CHAN. CONSTANT
                                                                                                                     NO CULVERTS

   5.5  LOS COCHES
          FROM BERRYESSA CRK                  0.00  .030   100   0.6    JUN 84 .031   100    0.6    0.2     0.00   EXCAVATED  EARTH
          THRU  D/S DWY 680 RCB               13.50                                                                  IMPROVED REACH
                                                                                                                     CHAN. CONSTANT
                                                                                                                     NO CULVERTS

   5.6  LOWER PENITENCIA
          FROM  U/S CAPITOL AVE RCB          176.00  .030   999   0.8    JUN 84 .036   131    0.0    0.2   176.00   EXCAVATED  EARTH
          THRU  D/S MAIN ST RCB              184.50                                                                  IMPROVED REACH
                                                                                                                     CHAN. CONSTANT
                                                                                                                     NO CULVERTS
                                                                                                                     EXQ1>DSGN Q1-U/S SPILL?
   5.7  EAST PENITENCIA
          FROM  U/S CONFL WITH L.PEN           0.00  .030   999   1.5    JUN 84 .042   216    0.0    0.2     0.00   EXCAVATED  EARTH
          THRU  D/S MONTAGUE EXPWY            15.00                                                                  IMPROVED REACH
                                                                                                                     CHAN. CONSTANT
                                                                                                                     NO CULVERTS
                                                                                                                     EXQ1>DSGN Q1-U/S SPILL?
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*********************************************************    GROUP 5    *********************************************************

     THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD.  RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

                                                  MAINTENANCE
                                                    STANDARD              EXISTING CONDITION              STATION
RANK  CREEK                               STATION  ****************   *****************************    W/MIN    CHANNEL TYPE WITH
       LOCATION                           LIMITS         FLOOD FREE-                FLOOD SED    FREE-   FREE-    MINIMUM FREEBOARD
                                                   NMIN  FREQ  BOARD   DATE     N   FREQ DEPTH  BOARD   BOARD      REACH DESCRIPTIONS
                                                         (YR)  (FT)                 (YR)  (FT)   (FT)    (FT)

 5.8  LOWER PENITENCIA
        FROM  U/S SPRR RCB                187.50   .030  999   1.0    JUN 84 .035   205   0.0    0.3   203.50   EXCAVATED  EARTH
        THRU  LIMITS OF JURISDICTION      218.00                                                                   IMPROVED REACH
                                                                                                                   CHAN. CONSTANT
                                                                                                                   NO CULVERTS
                                                                                                                   EXQ1>DSGN Q1-U/S SPILL?
 5.9  LOWER PENITENCIA
        FROM  D/S MAIN ST RCB             184.50   .013  999   0.3    JUN 84 .020   999   0.0    0.3   186.00   PIPE
        THRU  U/S SPRR RCB                187.50                                                                   IMPROVED REACH
                                                                                                                   CHAN. CONSTANT
                                                                                                                   BOX CULVERT(S)
                                                                                                                   EXQ1>DSGN Q1-U/S SPILL?
5.10  UPPER SILVER
        FROM FREEWAY                       40.00   .013  189   0.4    JUL 84 .013   189   0.0    0.4    63.00   TRAPEZOIDAL CONCRETE
        THRU  D/S SILVER CREEK ROAD        66.36                                                                   IMPROVED REACH
                                                                                                                   CHAN. CONSTANT
                                                                                                                   NO CULVERTS

5.11  LOS COCHES
        FROM  D/S DWY 680 RCB              13.50   .013  100   0.8    JUN 84 .013   100   0.2    0.6    13.50   BOX CULVERT
        THRU  U/S FWY 680 RCB              15.75                                                                   IMPROVED REACH
                                                                                                                   CHAN. CONSTANT
                                                                                                                   BOX CULVERT(S)

5.12  UPPER SILVER
        FROM  U/S MCGLAUGHLIN DR. RBC      12.50   .013  324   0.7    JUL 84 .013   324   0.0    0.7    23.00   TRAPEZOIDAL CONCRETE
        THRU  D/S 680 CMP/PBC              37.00                                                                   IMPROVED REACH
                                                                                                                   CHAN. CONSTANT
                                                                                                                   NO CULVERTS

5.13  TULARCITOS
        FROM  D/S HILLVIEW  TRI-RCB        33.50   .030  999   3.0    JUN 84 .046   999   1.5    0.7    34.10   EXCAVATED  EARTH
        THRU  D/S 680 @ DOUBLE RCB         36.16                                                                   IMPROVED REACH
                                                                                                                   CHAN. NOT CONST.
                                                                                                                   BOX CULVERT(S)

5.14  UPPER SILVER
        FROM COYOTE CREEK                   0.00   .013  324   0.8    JUL 84 .013   305   0.1    0.7     2.05   TRAPEZOIDAL CONCRETE
        THRU  D/S MCGLAUGHLIN DR. RBC      11.00                                                                   IMPROVED REACH
                                                                                                                   CHAN. NOT CONST.
                                                                                                                   BOX CULVERT(S)
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**********************************************************    GROUP 5    ****************************************************

      THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD.  RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

                                                          MAINTENANCE
                                                           STANDARD              EXISTING CONDITION              STATION
RANK  CREEK                                   STATION  *****************   ********************************   W/MIN     CHANNEL TYPE WITH
       LOCATION                               LIMITS         FLOOD FREE-                    FLOOD SED     FREE-  FREE-     MINIMUM FREEBOARD
                                                       NMIN  FREQ  BOARD   DATE      N     FREQ  DEPTH  BOARD  BOARD       REACH DESCRIPTIONS
                                                             (YR)  (FT)                    (YR)  (FT)   (FT)   (FT)

5.15  SIERRA
       FROM  U/S HOSTETTER RD RBC           29.60   .030   999   1.3   JUN 84 .035   999   0.0    1.0    48.00   EXCAVATED  EARTH
       THRU NR.RUSKIN ELEM.SCH.             49.00                                                                   IMPROVED REACH
                                                                                                                    CHAN. CONSTANT
                                                                                                                    NO CULVERTS

5.16  SIERRA
       FROM BERRYESSA CREEK                  0.00   .030   999   1.3   JUN 84 .035   999   0.0    1.0    27.51   EXCAVATED  EARTH
       THRU  U/S HOSTETTER RD RBC           29.60                                                                   IMPROVED REACH
                                                                                                                    CHAN. NOT CONST.
                                                                                                                    BOX CULVERT(S)

5.17  LOWER SILVER
       FROM  D/S CAPITOL EXPWY. RBC        155.00   .013   100   1.2   JUL 84 .013   100   0.2    1.0   156.00   BOX CULVERT
       THRU  U/S CAPITOL EXPWY. RBC        157.20                                                                   IMPROVED REACH
                                                                                                                    CHAN. CONSTANT
                                                                                                                    BOX CULVERT(S)

5.18  LOWER PENITENCIA
       FROM  U/S CALAVERAS BLVD. RBC       113.20   .030   999   2.0   JUN 84 .036   693   0.0    1.1   113.50   EXCAVATED  EARTH
       THRU  U/S SYLVIA AVE RBC            136.10                                                                   IMPROVED REACH
                                                                                                                    CHAN. CONSTANT
                                                                                                                    BOX CULVERT(S)
                                                                                                                    EXQ1>DSGN Q1-U/S SPILL?
5.19  RUBY
       FROM  U/S L.CUNNGHAM ENTR.RBC        10.60   .030   999   1.1   JUL 84 .030   999   0.0    1.1    10.60   EXCAVATED  EARTH
       THRU  D/S TULLY RD(BEG 7'RCP)        12.00                                                                   IMPROVED REACH
                                                                                                                    CHAN. CONSTANT
                                                                                                                    NO CULVERTS

5.20  NORTH BABB
       FROM  U/S LYNDALE AVE RCB             3.55   .025   999   1.3   JUL 84 .025   999   0.0    1.3     3.55   SACKED CONCRETE RIPRAP
       THRU  U/S LYNDALE-BEG CT              7.00                                                                   IMPROVED REACH
                                                                                                                    CHAN. CONSTANT
                                                                                                                    NO CULVERTS
                                                                                                                    EXQ1>DSGN Q1-U/S SPILL?
5.21  EAST PENITENCIA
       FROM  D/S WESTERN PACIFIC RR         25.00   .030   999   2.5   JUN 84 .044   999   0.0    1.3    25.00   EXCAVATED  EARTH
       THRU  D/S WESTERN PACIFIC RR         30.00                                                                   IMPROVED REACH
                                                                                                                    CHAN. CONSTANT
                                                                                                                    NO CULVERTS
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** GROUP 5 **

THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD. RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD			EXISTING CONDITION					STATION W/MIN FREEBOARD (FT)	CHANNEL TYPE WITH MINIMUM FREEBOARD REACH DESCRIPTIONS
			NMIN	FLOOD FREQ (YR)	FREEBOARD (FT)	DATE	N	FLOOD FREQ (YR)	SED DEPTH (FT)	FREEBOARD (FT)		
5.22	LOWER PENITENCIA FROM U/S REDWOOD AVE THRU D/S CALAVERAS BLVD. RBC	69.00 111.74	.030	999	1.8	JUN 84	.031	999	0.5	1.3	89.20	EXCAVATED EARTH IMPROVED REACH CHAN. NOT CONST. BOX CULVERT(S)
5.23	NORWOOD FROM U/S CONFL WITH THOMPSON THRU U/S THOMPSON CRK CONFL	0.00 0.50	.013	999	2.0	JUL 84	.013	729	0.8	1.5	0.00	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
5.24	FLINT FROM U/S RCB /BEG GABIONS THRU RUBY CRK CONF/BEG 78"RCP	14.10 17.50	.035	999	2.9	JUL 84	.050	651	0.3	1.6	14.10	GABIONS - SIDES ONLY IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.25	CALERA FROM CONFL/BERRYESSA CR THRU D/S S.P. RAILROAD	0.00 1.50	.030	999	3.0	JUN 84	.035	102	1.5	1.7	0.00	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.26	UPPER PENITENCIA FROM U/S LOWER MABURY THRU U/S ED. PARK DR.	57.00 64.00	.030	100	1.8	JUL 84	.035	100	0.0	1.8	63.38	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
5.27	THOMPSON FROM SILVER CRK CONFLU THRU D/S QUIMBY RD. RCB	0.00 9.50	.030	679	5.0	JUL 84	.043	100	2.0	1.8	0.00	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.28	RUBY FROM D/S L.CUNNGHAM ENTR.RBC THRU U/S L.CUNNGHAM ENTR.RBC	10.00 10.60	.013	999	2.1	JUL 84	.013	999	0.4	1.8	10.00	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)

** GROUP 5 **

THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD. RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD			EXISTING CONDITION					STATION W/MIN FREEBOARD (FT)	CHANNEL TYPE WITH MINIMUM FREEBOARD REACH DESCRIPTIONS
			NMIN	FLOOD FREQ (YR)	FREEBOARD (FT)	DATE	N	FLOOD FREQ (YR)	SED DEPTH (FT)	FREEBOARD (FT)		
5.29	BERRYESSA FROM D/S ABEL ST (DITCH) THRU U/S ABLE ST	22.00 29.00	.013	999	6.6	JUN 84	.028	100	2.0	2.0	22.00	TRAPEZOIDAL CONCRETE IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.30	NORTH BABB FROM U/S GLORIA RD-BEG SC THRU D/S CURETON PL-BEG RCP	42.00 52.00	.013	999	2.0	JUL 84	.013	999	0.0	2.0	42.00	TRAPEZOIDAL CONCRETE IMPROVED REACH CHAN. CONSTANT NO CULVERTS EX01>DSGN 01-U/S SPILL?
5.31	UPPER PENITENCIA FROM U/S ED. PARK DR. THRU D/S UPPER MABURY	64.55 71.00	.030	100	2.4	JUL 84	.035	100	0.0	2.1	64.55	EARTHLEVEES IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.32	PIEDMONT FROM BERRYESSA CREEK THRU SINCLAIR FRONTAGE	0.00 16.00	.030	999	3.3	JUN 84	.040	999	0.3	2.4	5.00	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
5.33	BERRYESSA FROM L PENITENCIA CRK THRU D/S ABEL ST (DITCH)	0.00 22.00	.030	356	4.8	JUN 84	.040	100	2.0	2.4	10.00	EARTHLEVEES IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.34	UPPER PENITENCIA FROM D/S UPPER MABURY THRU U/S UPPER MABURY	71.00 71.28	.020	100	3.0	JUL 84	.025	100	0.5	2.5	71.00	EARTHLEVEES IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.35	LOWER PENITENCIA FROM AT CONFL WITH COYOTE THRU D/S HWY. 17	0.00 4.50	.030	999	7.1	JUN 84	.051	100	2.5	2.5	0.00	EARTHLEVEES IMPROVED REACH CHAN. CONSTANT NO CULVERTS

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**************************************************************   GROUP 5   **************************************************************

     THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD.  RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

                                                   MAINTENANCE
                                                    STANDARD               EXISTING CONDITION              STATION
RANK  CREEK                              STATION  *****************  ******************************   W/MIN    CHANNEL TYPE WITH
       LOCATION                          LIMITS         FLOOD FREE-                FLOOD SED    FREE-  FREE-    MINIMUM FREEBOARD
                                                  NMIN  FREQ  BOARD   DATE    N    FREQ  DEPTH  BOARD  BOARD      REACH DESCRIPTIONS
                                                        (YR)  (FT)                 (YR)  (FT)   (FT)   (FT)

5.36  THOMPSON
        FROM  U/S QUIMBY RD. RCB          11.00   .035   679   3.3   JUL 84 .041   115   0.3    2.5   22.00   MODIFIED FLOOD PLAIN
        THRU  D/S QUIMBY CREEK            56.50                                                                   IMPROVED REACH
                                                                                                                  CHAN. CONSTANT
                                                                                                                  NO CULVERTS

5.37  NORTH BABB
        FROM  U/S LYNDALE-BEG CT.          7.00   .013   999   2.6   JUL 84 .013   999   0.0    2.6    7.00   TRAPEZOIDAL CONCRETE
        THRU  D/S WHITE ROAD RCB          15.00                                                                   IMPROVED REACH
                                                                                                                  CHAN. CONSTANT
                                                                                                                  NO CULVERTS
                                                                                                                  EXQ1>DSGN Q1-U/S SPILL?
5.38  EAST PENITENCIA
        FROM  U/S MONTAGUE EXPWY          16.15   .030   999   2.6   JUN 84 .031   999   0.0    2.6   16.15   EXCAVATED  EARTH
        THRU  D/S WESTERN PACIFIC RR      25.00                                                                   IMPROVED REACH
                                                                                                                  CHAN. CONSTANT
                                                                                                                  NO CULVERTS

5.39  UPPER PENITENCIA
        FROM  D/S LOWER MABURY            56.65   .020   100   3.1   JUL 84 .020   100   0.5    2.8   56.65   BOX CULVERT
        THRU  U/S LOWER MABURY            57.00                                                                   IMPROVED REACH
                                                                                                                  CHAN. CONSTANT
                                                                                                                  BOX CULVERT(S)

5.40  TULARCITOS
        FROM  D/S TRAMWAY @ TRI-RBC       24.00   .030   999   3.2   JUN 84 .034   999   0.0    2.8   30.41   EXCAVATED  EARTH
        THRU  D/S HILLVIEW  TRI-RCB       33.50                                                                   IMPROVED REACH
                                                                                                                  CHAN. NOT CONST.
                                                                                                                  BOX CULVERT(S)

5.41  CALERA
        FROM U/S N MILPITAS BLV            8.50   .030   293   3.1   JUN 84 .032   176   0.0    2.9   30.00   EXCAVATED  EARTH
        THRU  U/S TYPE III DROP           30.75                                                                   IMPROVED REACH
                                                                                                                  CHAN. CONSTANT
                                                                                                                  BOX CULVERT(S)

5.42  EAST PENITENCIA
        FROM  D/S MONTAGUE EXPWY          15.00   .013   999   3.1   JUN 84 .013   999   0.2    3.0   15.00   BOX CULVERT
        THRU  U/S MONTAGUE EXPWY          16.15                                                                   IMPROVED REACH
                                                                                                                  CHAN. CONSTANT
                                                                                                                  BOX CULVERT(S)
                                                                                                                  EXQ1>DSGN Q1-U/S SPILL?
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**********************************************************    GROUP 5    **************************************************************

   THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD.  RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

                                                      MAINTENANCE
                                                        STANDARD              EXISTING CONDITION              STATION
 RANK  CREEK                                 STATION  ****************   *****************************     W/MIN    CHANNEL TYPE WITH
        LOCATION                             LIMITS           FLOOD FREE-                   FLOOD SED     FREE-  FREE-    MINIMUM FREEBOARD
                                                       NMIN   FREQ  BOARD    DATE     N     FREQ  DEPTH   BOARD  BOARD      REACH DESCRIPTIONS
                                                              (YR)  (FT)                    (YR)  (FT)    (FT)   (FT)

 5,43  BERRYESSA
         FROM  U/S ABLE ST                    29.00   .030   999    4.1   JUN 84 .035   219   1.0     3.0    76.50   EXCAVATED  EARTH
         THRU D/S CALAVERAS BLVD              87.00                                                                   IMPROVED REACH
                                                                                                                      CHAN, NOT CONST,
                                                                                                                      NO CULVERTS

 5,44  QUIMBY
         FROM  D/S WHITE RD, RBC              11.50   .013   999    3.1   JUL 84 .013   999   0.2     3.0    11.50   BOX CULVERT
         THRU  U/S WHITE RD, RBC              13.25                                                                   IMPROVED REACH
                                                                                                                      CHAN, CONSTANT
                                                                                                                      BOX CULVERT(S)

 5,45  CALERA
         FROM D/S S.P. RAILROAD                1.50   .013   100    3.4   JUN 84 .016   100   0.2     3.3     7.00   BOX CULVERT
         THRU U/S N MILPITAS BLV               8.50                                                                   IMPROVED REACH
                                                                                                                      CHAN, NOT CONST,
                                                                                                                      BOX CULVERT(S)

 5,46  LOWER SILVER
         FROM COYOTE CREEK CONF                0.00   .030   999    6.4   JUL 84 .045   100   0.0     3.3     0.00   EXCAVATED  EARTH
         THRU  D/S WOOSTER ST                 10.00                                                                   IMPROVED REACH
                                                                                                                      CHAN, CONSTANT
                                                                                                                      NO CULVERTS

 5,47  PIEDMONT
         FROM SINCLAIR FRONTAGE               16.00   .013   999    3.5   JUN 84 .013   999   0.2     3.4    16.00   BOX CULVERT
         THRU E SIDE HWY 680                  19.00                                                                   IMPROVED REACH
                                                                                                                      CHAN, CONSTANT
                                                                                                                      BOX CULVERT(S)

 5,48  TULARCITOS
         FROM BERRYESSA CRK                    0.00   .030   999    4.1   JUN 84 .036   999   0.0     3.5     1.22   EXCAVATED  EARTH
         THRU  D/S TRAMWAY @ TRI-RBC          24.00                                                                   IMPROVED REACH
                                                                                                                      CHAN, NOT CONST,
                                                                                                                      BOX CULVERT(S)

 5,49  NORTH BABB
         FROM  D/S WHITE ROAD RCB             15.00   .013   999    4.1   JUL 84 .013   999   0.0     4.1    15.00   BOX CULVERT
         THRU  U/S WHITE ROAD RCB             16.00                                                                   IMPROVED REACH
                                                                                                                      CHAN, CONSTANT
                                                                                                                      BOX CULVERT(S)
                                                                                                                      EXQ1>DSGN Q1-U/S SPILL?
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*******************************************************    GROUP 5    ***********************************************************

         THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD.  RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.


                                                   MAINTENANCE
                                                    STANDARD           EXISTING CONDITION            STATION
 RANK  CREEK                               STATION  *****************  ****************************** W/MIN    CHANNEL TYPE WITH
        LOCATION                           LIMITS          FLOOD FREE-                FLOOD SED   FREE- FREE-    MINIMUM FREEBOARD
                                                    NMIN  FREQ  BOARD  DATE    N      FREQ DEPTH BOARD BOARD      REACH DESCRIPTIONS
                                                          (YR)  (FT)                  (YR)  (FT)  (FT)  (FT)

 5.50  BERRYESSA
        FROM  D/S MONTAGUE EXPWY RCB  166.50    .013  100   4.4  JUN 84 .013   100   0.2   4.3  166.50   BOX CULVERT
        THRU  U/S MONTAGUE EXPWY RCB  167.00                                                               IMPROVED REACH
                                                                                                           CHAN. CONSTANT
                                                                                                           BOX CULVERT(S)

 5.51  UPPER PENITENCIA
        FROM  U/S ED. PARK DR.           64.00    .030  100   2.4  JUL 84 .013   100   0.5   4.4   64.00   EARTHLEVEES
        THRU  U/S ED. PARK DR.           64.55                                                             IMPROVED REACH
                                                                                                           CHAN. CONSTANT
                                                                                                           NO CULVERTS

 5.52  LOWER SILVER
        FROM  NR BARBERRY LN            366.50    .030  999   5.0  JUL 84 .035   999   0.3   4.4  368.00   EXCAVATED  EARTH
        THRU KING ROAD                  377.50                                                             IMPROVED REACH
                                                                                                           CHAN. CONSTANT
                                                                                                           NO CULVERTS

 5.53  BERRYESSA
        FROM  D/S FWY 680               201.00    .013  999   4.5  JUN 84 .013   999   0.0   4.5  205.00   TRAPEZOIDAL CONCRETE
        THRU  U/S CROPLEY AVE RCB       223.00                                                             IMPROVED REACH
                                                                                                           CHAN. CONSTANT
                                                                                                           BOX CULVERT(S)

 5.54  LOWER PENITENCIA
        FROM  D/S CALAVERAS BLVD. RBC 111.74    .013  999   4.7  JUN 84 .013   999   0.0   4.7  111.74   BOX CULVERT
        THRU  U/S CALAVERAS BLVD. RBC 113.20                                                             IMPROVED REACH
                                                                                                           CHAN. CONSTANT
                                                                                                           BOX CULVERT(S)
                                                                                                           EXQ1>DSGN Q1-U/S SPILL?
 5.55  FISHER
        FROM LAGUNA A.                    0.00    .030  789   6.3  JUL 84 .052   100   0.7   4.9    0.00   EARTHLEVEES
        THRU  D/S MONTEREY HWY RCB        1.00                                                             IMPROVED REACH
                                                                                                           CHAN. CONSTANT
                                                                                                           NO CULVERTS

 5.56  QUIMBY
        FROM  U/S CONFL WITH THOMPSON     0.00    .030  999   5.3  JUL 84 .032   999   0.3   5.0    0.00   EXCAVATED  EARTH
        THRU  D/S WHITE RD. RBC          11.50                                                             IMPROVED REACH
                                                                                                           CHAN. CONSTANT
                                                                                                           NO CULVERTS
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** GROUP 5 **

THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD. RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD			EXISTING CONDITION					STATION W/MIN FREEBOARD (FT)	CHANNEL TYPE WITH MINIMUM FREEBOARD REACH DESCRIPTIONS
			NMIN	FLOOD FREQ (YR)	FREEBOARD (FT)	DATE	N	FLOOD FREQ (YR)	SED DEPTH (FT)	FREEBOARD (FT)		
5.57	THOMPSON FROM D/S QUIMBY RD. RCB THRU U/S QUIMBY RD. RCB	9.50 11.00	.035	679	3.5	JUL 84	.013	999	1.0	5.0	10.50	MODIFIED FLOOD PLAIN IMPROVED REACH CHAN. NOT CONST. BOX CULVERT(S)
5.58	BERRYESSA FROM D/S CALAVERAS BLVD THRU U/S CALAVERAS BLVD RCB	87.00 90.00	.013	225	5.8	JUN 84	.013	168	0.6	5.5	88.00	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
5.59	LOWER SILVER FROM D/S STORY RD. RBC THRU U/S STORY RD. RBC	180.55 183.00	.013	100	5.6	JUL 84	.013	100	0.0	5.6	182.00	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
5.60	LOWER PENITENCIA FROM D/S CONFL BERRYESSA CRK THRU D/S CONFL BERRYESSA CRK	38.40 43.00	.013	152	6.8	JUN 84	.013	100	1.0	5.9	38.40	TRAPEZOIDAL CONCRETE IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.61	LOWER PENITENCIA FROM D/S HWY. 17 THRU U/S CALIF. CIRCLE AVE	4.50 20.00	.030	999	9.1	JUN 84	.016	999	2.5	6.1	7.00	TRAPEZOIDAL CONCRETE IMPROVED REACH CHAN. NOT CONST. NO CULVERTS
5.62	LOWER PENITENCIA FROM U/S CONFL BERRYESSA CRK THRU U/S REDWOOD AVE	47.30 69.00	.025	999	8.3	JUN 84	.035	999	0.6	7.0	68.00	SACKED CONCRETE RIPRAP IMPROVED REACH CHAN. NOT CONST. NO CULVERTS
5.63	LOWER PENITENCIA FROM U/S CALIF. CIRCLE AVE THRU D/S CONFL BERRYESSA CRK	20.00 38.40	.030	999	8.6	JUN 84	.032	999	1.5	7.1	20.00	EXCAVATED EARTH BYPASS IMPROVED REACH CHAN. CONSTANT NO CULVERTS

** GROUP 5 **

THESE IMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD. RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.

RANK	CREEK LOCATION	STATION LIMITS	MAINTENANCE STANDARD NMIN	MAINTENANCE STANDARD FLOOD FREQ (YR)	MAINTENANCE STANDARD FREEBOARD (FT)	EXISTING CONDITION DATE	EXISTING CONDITION N	EXISTING CONDITION FLOOD FREQ (YR)	EXISTING CONDITION SED DEPTH (FT)	EXISTING CONDITION FREEBOARD (FT)	STATION W/MIN FREEBOARD (FT)	CHANNEL TYPE WITH MINIMUM FREEBOARD REACH DESCRIPTIONS
5.64	LOWER SILVER FROM D/S TULLY RD. RCB THRU U/S TULLY RD. RCB	 290.00 292.50	.013	999	8.6	JUL 84	.013	999	1.0	8.3	290.00	BOX CULVERT IMPROVED REACH CHAN. CONSTANT BOX CULVERT(S)
5.65	LOWER PENITENCIA FROM D/S CONFL BERRYESSA CRK THRU U/S CONFL BERRYESSA CRK	 43.00 47.30	.030	999	11.4	JUN 84	.042	184	1.0	10.0	44.00	EXCAVATED EARTH IMPROVED REACH CHAN. CONSTANT NO CULVERTS
5.66	UPPER PENITENCIA FROM U/S JACKSON APCH THRU D/S CAPITOL AVE	 90.07 117.50	.035	100	0.9	JUL 84	.035	100	0.0	0.9	110.00	NATURAL - UNMODIFIED PART. IMPROVED CHAN. NOT CONST. NO CULVERTS

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************************************************************  GROUP 6   ************************************************************

     THESE UNIMPROVED REACHES ARE ADEQUATE FOR THE ONE PERCENT FLOOD. RANKING IS FROM SMALLEST TO LARGEST FREEBOARD REMAINING.


                                                       MAINTENANCE
                                                         STANDARD              EXISTING CONDITION             STATION
 RANK  CREEK                                  STATION  *****************  ********************************  W/MIN     CHANNEL TYPE WITH
        LOCATION                              LIMITS          FLOOD FREE-                 FLOOD SED    FREE-  FREE-     MINIMUM FREEBOARD
                                                       NMIN  FREQ  BOARD   DATE      N   FREQ DEPTH  BOARD  BOARD       REACH DESCRIPTIONS
                                                              (YR)  (FT)                 (YR)  (FT)   (FT)   (FT)

  6.1  UPPER PENITENCIA
         FROM CONF WITH COYOTE                  0.00   .035   100   1.7   JUL 84 .045   100   0.0    0.0     8.00   NATURAL - UNMODIFIED
         THRU  D/S BRYSSA IND PK CUL           23.00                                                                   UNIMPROVED REACH
                                                                                                                       CHAN. CONSTANT
                                                                                                                       NO CULVERTS

  6.2  CALERA
         FROM  U/S EARTHEN DROP                52.75   .035   100   1.0   JUN 84 .049   100   0.0    0.1    57.50   NATURAL - UNMODIFIED
         THRU D/S FWY 680                      63.00                                                                   UNIMPROVED REACH
                                                                                                                       CHAN. CONSTANT
                                                                                                                       NO CULVERTS

  6.3  UPPER PENITENCIA
         FROM  D/S BRYSSA IND PK CUL           23.00   .020   100   3.0   JUL 84 .020   100   0.0    3.0    23.00   NATURAL - UNMODIFIED
         THRU  U/S BRYSSA IND PK CUL           23.60                                                                   UNIMPROVED REACH
                                                                                                                       CHAN. CONSTANT
                                                                                                                       NO CULVERTS
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